

COUNTWAY LIBRARY



HC 318E T

BOSTON
MEDICAL LIBRARY
8 THE FENWAY





Digitized by the Internet Archive
in 2016

<https://archive.org/details/journal2019miss>

THE JOURNAL

OF THE

Missouri State Medical Association

THE OFFICIAL ORGAN OF THE STATE ASSOCIATION AND COMPONENT SOCIETIES

ISSUED MONTHLY UNDER DIRECTION OF THE PUBLICATION COMMITTEE

PUBLICATION COMMITTEE

W. H. BREUER, Chairman

SCOTT P. CHILD, M.D.

M. A. BLISS, M.D.

E. J. GOODWIN, M.D., Editor

OFFICE OF PUBLICATION, 3529 PINE STREET, ST. LOUIS, MISSOURI

INDEX TO VOLUME XX

JANUARY, 1923, TO DECEMBER, 1923

100-100

RBD.

THE JOURNAL

OF THE

Missouri State Medical Association

The Official Organ of the State Association and Affiliated County Societies
Issued Monthly under direction of the Publication Committee

Volume XX

ST. LOUIS, MO., JANUARY, 1923.

NUMBER 1

E. J. GOODWIN, M. D., EDITOR
3529 Pine St., ST. LOUIS, Mo.

PUBLICATION COMMITTEE { W. H. BREUER, M. D., Chairman
S. P. CHILD, M. D.
M. A. BLISS, M. D.

ORIGINAL ARTICLES

ARTERIAL HYPERTENSION*

LINDSAY S. MILNE, M.D.

KANSAS CITY, MO.

Arterial hypertension has been the subject of most voluminous literature and much medical thought for close upon a century, yet unfortunately the majority of these studies has largely been of speculative character or along the lines of destructive criticism of various and basic ideas originally evolved as regards its etiology, significance and treatment. Indeed, at the present day, although it is true that the last few years have corrected many of our mistaken conceptions, the fundamental facts regarding its etiology are still awaiting solution. One hesitates, therefore, to bring up a subject to which one can add so little of real importance yet one cannot, equally, but feel that that is a just and sufficient reason to emphasize some of its complexities in the hope that at some near future date a definite therapeutic solution may be advanced for this very common and serious disorder.

Since the days of Richard Bright in 1836, who observed the cardiac hypertrophy and dilatation in chronic nephritis cases, various observers who followed him have considered hypertension and cardiac hypertrophy the result of chronic nephritis. Taube first considered that the hypertension was due to the contraction of the renal blood vessels and consequent cardiac hypertrophy necessary to drive the blood through the kidneys to maintain renal function. Ewald and Potain extended this, in that they believed there was a general vaso-constriction due to an irritated kidney reflex. Since those days, it has frequently been observed by pathologists that there often occur cases of extreme cardiac hypertrophy and hypertension even in children with little or no evidence of renal involvement. Mahomet, noticing cases that had hypertension even for years before any renal disorder became evident, described what he

called a hypertension prealbuminuric stage of Bright's. Albutt, in more recent years, found many so-called prealbuminuric Bright's cases with hypertension, which never developed, even until the time of death, any nephritic signs. Janeway, in 458 cases of blood pressure over 160, found 116 with neither albumin nor casts, these cases by various authors being described as "benign" or "essential" hypertension, "hypersensitive cardiovascular disease," "hypertension," etc. The pivotal idea has always been that a diminished excretory activity of the kidney results in efforts intended to restore the normal renal function, amongst these being an increased arterial pressure. In animal experiments it has been demonstrated that reduction of the kidney substance does to some extent increase blood pressure, yet in local removal or ligation or complete obstruction of the ureters, or the anurias of acute nephritis from bichloride poisoning, this does not occur. A similar example is found in the chronic obstructive prostate case; the blood pressure may rise and is often relieved after the introduction of retention catheters. The fact that hypertension is an effort to increase renal function can hardly be substantiated, as it can be shown that the hypertension does not increase the circulation through the kidneys but actually hinders it, and also, as Shackleford and others have shown, that the urinary output as well as a diminution of the albumin and casts is often accomplished by lowering the pressure. It has to be granted that, although certain forms of degenerative nephritis are not associated with any elevation of blood pressure and cases are on record with very high creatinine, blood, urea, uric acid, etc., with no hypertension, and equally so cases of hypertension where these metabolic products are not increased, yet there are forms of nephritis where there is apparently a retention of certain substances which do cause a generalized vascular spasm and hypertension.

Of greater importance than the kidneys is the part played by the blood vessels in the production of hypertension. The systolic pressure is determined by the heart beat and the diastolic pressure by the tonicity of the arteries and arterioles and probably the capil-

*Read at the Sixty-fifth Annual Meeting, Missouri State Medical Association, Jefferson City, May 2, 3, 4, 1922.

laries. In any rigid system of tubes open at one end, attached to a pump, in the intervals between the pumping pressure there would be no diastolic pressure. Such a situation is approximated in arteriosclerosis where the blood vessels lose their elasticity, contractility and tonicity and consequently the diastolic pressure falls below normal and the systolic tends to rise. In former years hardening of the arteries was considered as one of the main causes of hypertension yet now we know that extreme arteriosclerosis, especially if only in the larger vessels, may exist with little or no change in blood pressure. Indeed it can be shown that in arteries removed from the body and containing a known fluid pressure, extreme arteriosclerosis in itself only raises the compressibility some 10 mm. at most. When the tonicity of the arteries is increased the diastolic pressure must rise, for the blood column is under greater tension, and it follows that the systolic pressure must rise to maintain the circulation. This has therefore been considered the essential cause of hypertension and as such the systolic and diastolic pressure should rise and fall together. Variations, however, from this do occur and are divided roughly into three groups:

1. Cases of high systolic pressure and low diastolic (230-90), dependent on an increased force of the heart and where the pressure is lowered, it is mostly observable in the systolic drop. Such condition occurs in high-grade arteriosclerosis with well compensated cardiac hypertrophy.

2. Relatively slight systolic increase and a high diastolic pressure (170-120) where there is necessarily marked dysfunction of the arteries and the heart not at all, or failing.

3. Where systolic and diastolic are both high (230-140), where both heart and arteries are involved, as in certain cases of primary spasm of the arterioles and secondary cardiac hypertrophy.

Hypertension is apparently not necessarily a compensatory factor that cannot be dispensed with or interfered with, and patients may be just as comfortable with a lowered pressure as with a high one and, although this has been a subject of much controversy, we are entirely at liberty, and it should be our effort, to lower the pressure as nearly to normal as possible. It of course might also be said of hypertension (as it does in some cases cause no symptoms), why try to reduce it? This latter procedure is extremely necessary if we study the future results of such cases. The majority (approximately 50 per cent.) die of cardiac failure, about one-fourth die of cerebral conditions, brain edema, hemorrhage, or other results of arteriosclerosis, and the most of the balance die of uremia. Janeway's sta-

tistics were: cardiac, 46.7; uremics, 22.6; cerebral, 14.6; yet now we know that many so-called uremics were really conditions dependent on cerebral vascular conditions.

In reviewing the pathology of hypertension cases it can at least speculatively be considered that in some cases of nephritis there may be metabolic substances retained in the system that cause a general vaso-constriction, raising the diastolic pressure and in due proportion as the heart also is stimulated or becomes secondarily hypertrophied the systolic also is raised. It is equally certain that many other factors can be responsible for hypertension, and it may be produced in either of two ways; one, where some degenerative process affects the media and subendothelial connective tissues of small arterioles, as for instance some infection either acute, as in diphtheria, or more slowly from some focal infection, as in tonsillitis, thus thickening the arterioles and necessitating a compensatory raise in blood pressure: two, many factors have been shown to act through the nervous mechanism of the arterioles and capillaries, causing a vaso-constriction, and so generalized increased pressure. After hypertension has existed for some time it also appears certain that the strain on the vessels further causes a degeneration and fibrosis in their walls and so adds arteriosclerosis, or, as it has been sometimes called, arterio-capillary fibrosis, to the pathologic findings. Indeed, the changes in the kidney, either as some fibrosis in the walls of the glomerular vessels up to the contracted, so-called atrophic or arteriosclerotic kidney, the result of atrophy of renal tissue behind the thickened arteriole system, is really often only a secondary result of the hypertension and subsequent arteriosclerosis. Later changes occur in the heart vessels and are followed by cardiac weakness, auricular fibrillation, ventricular extra systoles, or other causes of cardiac failure, and similar changes in the brain can cause the various cerebral symptoms so commonly noted in the termination of hypertension cases. This can be extended to include such organs as the pancreas, where similar atrophic processes can be observed pathologically, and may be in such degree as to be responsible for the incidence of a lowered sugar tolerance and increased blood sugar, severe grades of diabetic conditions not uncommonly noted in the course of hypertension cases.

Similar effects due to the condition of the smaller arteries may eventually produce the picture of the so-called albuminuric retinitis. Indeed, the condition of an individual's arteries may first be demonstrated by the ophthalmologist, and similar arterial changes involving the nutrition of the different organs

may well account for the varied symptomatology of hypertension and arteriosclerotic cases.

In 1916 Weiss described an interesting method by which the circulation in hypertension could be studied and which has produced some results. He observed the capillaries under the nail matrix under the microscope and noted that the capillaries were elongated and tortuous and often particularly branched, all of which indicated vascular obstruction—a very different picture from the normal as also from the dilated capillaries in a cardiac stasis case. Further studying the etiology of hypertension cases, a large percentage can be shown as vascular results of infections, not only from the pathologic standpoint but from the therapeutic results of removal of the infective focus which may, by its prevention of the spread of the disease, even permit of clinical cure. I think we have all noted cases of hypertension where removal of some septic focus has finally been followed by a decided clinical improvement. These infections may, of course, also be the cause of some nephritis, but the resulting blood pressure may not be entirely from the kidney condition but may be more or even entirely from the generalized vascular lesions and the renal condition and urinary findings only part of the general picture. Various poisons such as lead, arsenic, etc., have to be classed in the group. Syphilis has been an interesting study for some time, many believing it an important factor. It is true syphilis produces profound lesions in the blood vessels, especially the larger ones. Its distribution, however, is usually patchy and observed in the larger vessels and, although hypertension cases sometimes do have positive Wassermann reactions, yet syphilis, in proportion to its relative frequency, plays rather an unimportant role in the etiology of hypertension.

Passing from those cases where the primary condition has been an actual disease of the smaller arterioles and capillaries, there is also a group, apparently the most benign form of hypertension cases and those in whom we hope most for real cures, where there is a primary spasm of the arterio-capillary system. This condition, of course, if allowed to persist, will or may be followed by the secondary arterial changes as in the first group, and with the same terminations as regard the heart, kidneys and brain. In this group are the various endocrin cases. Indeed, there is a type of individual—the stockily built, stout individual—whose appearance is often supposed to suggest hypertension.

Hypertension often occurs in hyperthyroidism which in itself may probably not be a cause but possibly acts through the medium of adrenal or pituitary stimulation. It is interest-

ing to note in autopsy work how often the adrenals are actually, sometimes markedly, hypertrophied in hypertension cases. Syphilis and various other diseases may cause an adrenal hypertrophy and perhaps by its pathological effects, which have been several times noted on the adrenal, can cause the occasionally noted co-existence of lues and hypertension. The influence of the adrenal has often been considered in connection with hypertension. Experiments have been conducted with injections of adrenalin and it has been noted in rabbits that serial injections were followed by a degree of arteriosclerosis. As against this, however, it has been also shown that rabbits often show arteriosclerotic changes in cases having no adrenalin, and it has also been considered that adrenalin or impurities in it act as toxins producing degenerative changes in the small blood vessels. It has been shown that injections of adrenalin usually raise the blood pressure, especially so in hyperthyroid cases, yet peculiarly enough and a fact difficult of explanation the works of Girou and also of Izquierdo have shown that in hypertension cases adrenalin actually, and often markedly, lowers the blood pressure. It may be that in hypertension cases as in asthma the effect of sympathetic stimulation may tend to balance the pressor effect on the blood vessels and so lower the pressure. A very frequent type of hypertension is found in climacteric cases, many women and some men apparently developing often a high degree of hypertension at this time. There is in these cases generally no evidence of nephritis, no impairment of renal function at first and often for years, and perhaps never. They may be due to ovarian, or corpus luteum atrophy, being succeeded by a secondary pituitary and adrenal hypertrophy, or possibly to various metabolic changes we are not familiar with. It seems certain, however, that in many cases injections or administrations of corpus luteum or ovarian extract may be followed by very beneficial and more or less lasting reductions of blood pressure, often surprisingly so. In this class of essential hypertension may perhaps also best be put those cases apparently due to worry and mental strain, a surprisingly large group in these strenuous days. These cases also may act through an endocrin dyscrasia but seen in many instances to be markedly improved if not cured by rest and cessation from worry. Indeed, psychotherapy in its broadest sense, by inspiring hope and installing confidence and by cultivating in the patient an ability to realize the future with equanimity, may oftentimes achieve some real results in the treatment of hypertension, especially where a nervous etiologic element is considered, and is to some extent beneficial in all.

It can easily be demonstrated in almost any case that rest alone will lower the blood pressure, and limitation of at least strenuous exercise with intervals of rest is a constitutional element in the treatment of all cases. For years, and still, to some extent, excess protein foods and their derivatives were considered to be the cause of hypertension. Patients were advised to take meat, either none or only in very sparing quantity. It was shown by Mosenthal and seems to be a fact that protein values, in varying quantities from 125 to 50 grains in equal caloric daily diets, can be given to high blood pressure cases with no alteration in the blood pressure whatever. It may also be a fact that where no meat or proteins are taken the individual becomes anemic and loses vitality and in this way the pressure falls, but at this expense it is hardly worth while. It is true that in nephritis cases the protein intake should be held within reasonable bounds yet in the average hypertension case, especially those not related to primary nephritis cases, a normal balanced ration free from irritating extracts or purins which might themselves damage the blood vessels, is most reasonable. The heavy cereal diet usually prescribed for hypertension cases often succeeds in producing obesity, a factor in itself tending to cause cardiac hypertrophy and hypertension. In polycythemia there may be some little hypertension and various workers have attempted to show that increased viscosity of the blood was the cause of hypertension. These have never been really substantiated although certain cases of hypertension with plethora, many due to failing hearts, are vastly relieved from time to time by having some blood removed.

In 1904 Ambard and Beaugard, and later Allen and others, suggested that salt retention is the cause of hypertension. It is true that in certain types of nephritis and in cardiac cases with edema salt administration increases the edema, yet apparently as regards the hypertension there is no relation to salt intake. Mosenthal, for instance, has shown that large quantities of salt can be taken with no variation of the pressure and that the chloride content of the blood bore no relation to the degree of hypertension.

Miller and Williams showed that when great quantities of water were taken there was some rise in the blood pressure and limitation of the water intake has been current practice in the treatment of hypertension, yet up to fifty per cent. of the blood volume can be injected intravenously with no special change in the blood pressure. Foster and Davis studied twenty-two hypertension cases with reference to the urea excretion after administration of various quantities of water. Urea was somewhat diminished when the water intake was below

1000 but at 2000 c.c. daily, nitrogen excretion was at its maximum and the excretion of nitrogen often even more than the intake.

If any conclusions can be drawn from these studies they are that hypertension is usually a symptom of some generalized cardio-vascular disease in the nature of some degree of increased cardiac force associated with either some spasm or sclerotic condition of the arteriocapillary system. Even in nephritis, although some retained metabolic process may in itself cause hypertension, yet the same processes causing the nephritis may by their action on the blood vessels cause the hypertension associated with nephritis.

It is also of the utmost importance to discover the hypertension case early in its career and so ward off, if possible, the usual consequent secondary arterial changes and their effects on the systemic organs.

Further, the etiology of the hypertension must be estimated, be it from some toxic cause, some endocrin or neuropathic disturbance, or on the basis of a nephritis, and by appropriate remedial measures attempt at least an arrest of the progress of the disease.

The height of the blood pressure is not an indication of the amount of kidney involved, but is essentially an evidence of the degree of involvement of the arteriocapillary system. Hypertension is not necessary to maintain the circulation through the kidneys, and every effort should in moderation be made to lower it and maintain it at a lower level.

Having determined the cause of the hypertension and the extent to which it has caused secondary systemic changes, a rational dietary calculated to support the nutrition and strength of the individual should be adopted, in addition to the necessary limitation of exercise and various hygienic, psychopathic, eliminative, hydrotherapeutic, electrotherapeutic, and sometimes surgical remedies, administered to combat the etiologic factors involved and to lower the existing state of hypertension and so at least prevent the incidence of the serious terminal events of this disease.

406 Waldheim Bldg.

PARALYSIS AGITANS*

DAVID S. BOOTH, M.D.

ST. LOUIS, MO.

Synonyms.—The most common is the eponym, Parkinson's disease; shaking palsy; the trembles; chorea festinans (Sauvages); chorea procursiva (Bernt) and sclerotynbe festinans.

*Read at the Sixty-fifth Annual Meeting, Missouri State Medical Association, Jefferson City, May 2, 3, 4, 1922.

The term paralysis agitans is considered inappropriate since, though there is muscular weakness, true paralysis does not occur except possibly as a complication, and it may not be accompanied with tremor.

Paralysis agitans is usually defined as a progressive functional disease of the nervous system, the cardinal symptoms of which are a distinctive rhythmic tremor and muscular rigidity, with weakness, and often accompanied with a characteristic facial expression, a peculiar attitude, a distinctive gait and a delay in voluntary motion.

We thus find paralysis agitans defined as a functional disease, notwithstanding the pathological lesions almost constantly found. Most investigators have found atrophy in the motor neurons, but variously located in the neuronic hierarchy, i. e., the several levels of the upper or in the lower neurons, from the cortex of the cerebrum to the anterior horn cells of the spinal cord, the latter of which are, in fact, the cell bodies of the peripheral nerves, and accompanied with involvement of the blood vessels (arteriosclerosis, etc.), and a proliferation of the neuroglia, while a few have found changes in the peripheral nerve fibers themselves, and even atrophy of the cells of the muscles, i. e., abiotrophy (Gr. *a*, neg., *bios*, life and *trophe*, nutrition), with an increase of interstitial tissue.

Many pathological findings which have been reported are evidently purely senile changes.

A few cases have been reported in which the pathological examination of the central nervous system proved negative.

There may be other diseases of which we have so little positive knowledge, but probably none in which there are as many different, divergent and contradictory views, both as to the etiology and pathology, as in the disease under discussion.

To discuss these would involve us in a maze of hypotheses; to even describe the various pathological findings would entangle us in a labyrinth of uncertainty—both of which would possibly be interesting and enlightening to the amateur in neurology and probably entertaining to the connoisseur, but we fear they would weary others who have not the time for speculation in a specialty other than their own, and hence properly expect, if they do not demand, plausible conclusions when proven facts are not available; therefore, I shall refer briefly to the more recent authoritative pathological findings and what appears to be the most plausible theories, which each may collate, and accept or reject, as his judgment dictates.

J. Ramsey Hunt, from very extensive clinical and anatomic research work, has formulated a working hypothesis concerning the connection between lesions of the corpus striatum and various hitherto obscure symptom complexes.

Anatomy.—The corpus striatum contains two motor nuclei, the caudate and lenticular, the latter of which is subdivided into the globus pallidus and putamen. The globus pallidus, because of its primordial origin in the verte-

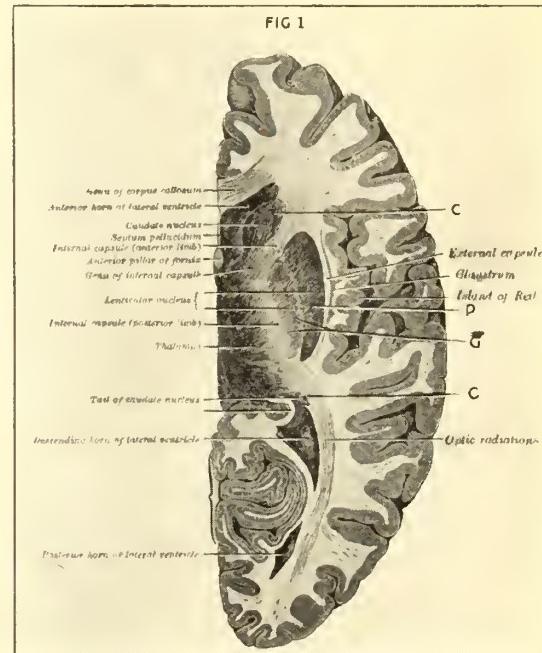


Fig. 1. Horizontal section of right cerebral hemisphere. G, Globus pallidus (paleostriatum); P, Putamen; C C, Caudate nucleus. Putamen (P) and caudate nucleus (C C) form the neostriatum.

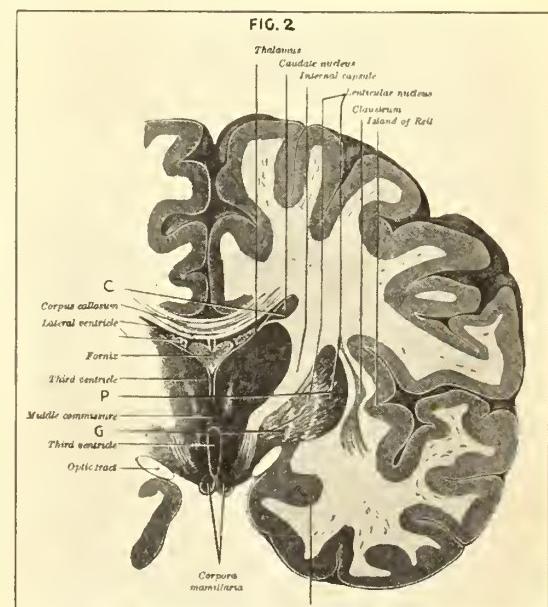


Fig. 2. Vertical transverse section of brain through middle commissure. G, Globus pallidus (paleostriatum); C, Caudate nucleus; P, Putamen. Putamen (P) and caudate nucleus (C) form the neostriatum.

brates, is distinguished as the paleostriatum, whereas the putamen and caudate nucleus, because of their later development in the higher order of vertebrates, are together known as the neostriatum.

Histology.—The globus pallidus is composed of a single type of cell, namely, the large pyramidal or giant cell.

The putamen and caudate nucleus consist principally of small stellate and large multipolar cells, the latter being considered identical with those of the globus pallidus.

Physiology.—The corpus striatum is the ganglionic origin of the extra-pyramidal motor

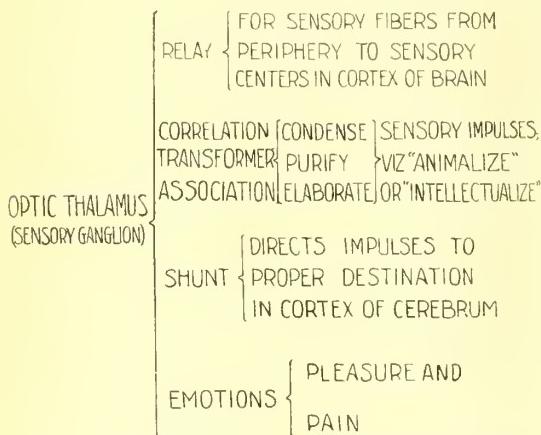


Fig. 3. Chart exhibiting the functions of the optic thalamus, the sensory ganglion associated with the motor system of the corpus striatum (forming the greater part of the basal ganglion) in the production of associated automatic and reflex acts.

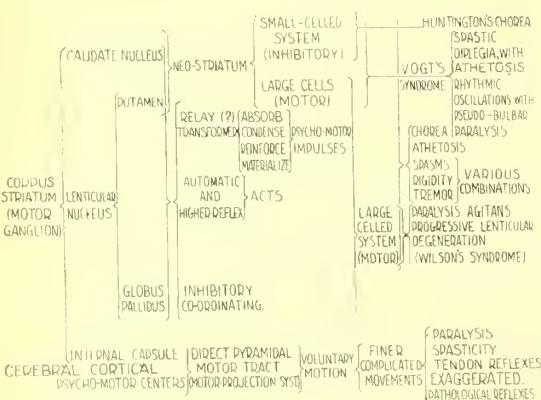


Fig. 4. Chart exhibiting the functions of the several components of the corpus striatum and depicting the clinical syndromes resulting therefrom.

system; the globus pallidus controlling primitive automatic associated movements while the small cells of the neostriatum (caudate and putamen) form an inhibitory and co-ordinating cerebral mechanism; whereas, the higher cortical centers through the pyramidal motor system are concerned with finer complicated discriminative movements.

Although it is generally understood that the corpus striatum absorbs, condenses, amplifies and materializes psychomotor impulses by virtue of its connection with the cerebral cortex through the pyramidal motor tract, J. Ramsey Hunt asserts it has no such connection.

The larger cells of the globus pallidus, putamen and caudate nuclei (i. e., pallidal system) are involved in paralysis agitans. An affection of the small cell system of the neo-striatum (caudate and putamen) releases the motor mechanism of the globus pallidus from control, and there results the phenomena of Huntington's chorea. A destructive lesion of both types of cells produces chorea and athetosis, as well as spasms, rigidity and tremor of various combinations.

Pathology.—Hunt* describes the following pathological changes in paralysis agitans: "Atrophy and diminution of the number of cells of the globus pallidus, as well as the large multipolar cells of the globus pallidus type which are scattered through the putamen and caudate nucleus. The cells in the putamen and caudate nucleus are similar in function. There is, also, a moderate increase of glia cells, but no inflammatory reactions or noteworthy vascular changes. No atrophy of cortico-spinal tracts (i. e., pyramidal tracts and internal capsule)."

Hunt believes paralysis agitans to be an abiotrophy of the motor or efferent globus pallidus system. It is a system disease and constitutes a pathological and clinical entity in the Parkinson clinical group.

Carl D. Camp,** from post-mortem examinations of fourteen cases of paralysis agitans, in eight of which he was able to study the peripheral nerves and muscles, and in two of them, also, the ductless glands, together with an elaborate review of the literature, concludes that "(1) it is not a neurosis, nor is it senility; (2) the anatomic basis of the symptoms, muscular rigidity, tremor, and the symptoms dependent on them, lies in the affection of the muscles themselves (i. e., primary degeneration, or abiotrophy); (3) the disease itself is probably a general toxemia and there is suggestive evidence that it is due to an alteration in the secretion of the parathyroid glands."

Etiology.—Notwithstanding the many and various hereditary and acquired predisposing factors, as well as the varied exciting causes, usually enumerated, little is definitely known regarding the etiology of paralysis agitans, since no one or more of the factors are present in any given series; so that the more recently presented theory that it is due largely, if not solely, to endocrine disorders, especially

*Jour. Nervous and Mental Diseases, 1917, Vol. LIV, p. 347.

**Jour. A. M. A., April 13, 1907, p. 1230.

hypo-function of the parathyroids, appears plausible.

Our own cases have not revealed definite predisposing or exciting causes; some have not even disclosed the presence of either emotion or stress to the degree ordinarily experienced by normal individuals of the same age, and we do not recall a case in which the disease had appeared in a consanguinious relative. One case was accompanied by a marked myxedema and a number were accompanied by disturbances of the generative organs, such as impotency in the male and infrequent menstruation or amenorrhea in the female.

Emotionalism, often given as a cause, is evidently an effect of the disease itself.

One point upon which clinicians are almost unanimous, and which is supported by laboratory examinations of both blood and spinal fluid, is that this disease is not of luetic origin.

Symptoms.—The usual classical, or cardinal, symptoms of paralysis agitans may be found in all text-books, so that we shall refer only to a few not usually mentioned; of these, impotency in the male and infrequent

menstruation or amenorrhea in the female, are symptoms apparently occurring too frequently to be simply coincidences. Scleroderma, brawny skin, myxedema, exophthalmic goiter, and disturbed calcium metabolism, indicated by excessive calcium excretion in the urine, all of which may be caused by endocrine disfunction, are occasionally present. Increase of phosphates in the urine has, also, been frequently observed.

In preparing the accompanying reports from previously selected case records, we noticed that all these patients were affected with either diseases of the gums or teeth, which at present we are unable to explain.

All of the reported post-mortem findings, and possibly all of the symptoms, may reasonably result from perversion of the endocrine glandular system.

As plants show evidence of failure of nutrition from defective soil in the death of their branches which may be irregularly involved; so would we expect catabolic changes (abitrophy) in the neurons, muscle cells, etc., to result from defective nutritive pabulum such as might occur from disturbed secretion of the



Figs. 5, 6, 7, 8. Views of case of acquired generalized athetosis, a syndrome of the pallidal system. All movements shown, including those of expression, are involuntary.

endocrine glands. In other words, it is possible that paralysis agitans may in the last analysis be due to a dysfunction of one or more of the endocrine glands. It was suggested by Lundborg, of Stockholm, in 1904, and by Berkeley, independently in 1905, that chronic dyscrasia or insufficiency of the parathyroid glands, is quite possibly the cause of the disease, but it seems even more plausible that other glands are either primarily or secondarily involved, notwithstanding Berkeley has repeatedly called attention to the ineffectiveness of other internal glands in the treatment of this disease, with the exception of the pineal gland to stimulate functionally failing mental activity, and specifically warns against the use of thyroid gland, which he believes does serious harm.

We have found that thyroid gland feeding does aggravate the symptoms in some cases, though acting kindly in the presence of co-existing myxedema, while the various sex glands appear beneficial in those cases accompanied with symptoms of perversion of the generative organs.

Quoting from Harrower's Practical Organotherapy,* we note that the parathyroid glands "(1) exert a control upon calcium metabolism and (2) have an antitoxic action, the chief purpose of which is the 'destruction of substances which have a predilection for influencing nervous tissues,'" from which the possible involvement of these glands in paralysis agitans, as well as in other diseases of the nervous system, becomes apparent.

Because a disease does not recover after the removal of its cause is not necessarily evidence against the disease being due to that cause, since incurable pathological lesions may have resulted. This may reasonably be assumed to be the case in the event that endocrine dysfunction is the cause of the variously described pathological findings in paralysis agitans. Furthermore, the absence of pathological findings which have been reported would sustain the assumption that this disease is an endocrinopathy.

Differential Diagnosis.—Since the prospect for successful treatment depends upon the early recognition of this disease, one needs be on the alert, and while the fully developed disease is rarely difficult to diagnose, there are several conditions which may very much simulate paralysis agitans, among which is that polymorphic organic condition, multiple, or insular, sclerosis which simulates most other diseases of the nervous system. It is the cerebellar type of multiple sclerosis which most resembles paralysis agitans, and which may be distinguished by the tremor occurring only

upon movement (so-called intention tremor), being wider in range and more irregular than in paralysis agitans, though intention tremor may occur early in the latter. Multiple sclerosis rarely commences after 40; paralysis agitans, rarely before 30. Multiple sclerosis is usually accompanied with nystagmus, loss of abdominal reflexes, exaggerated tendon reflexes and often with pathological reflexes, and slight optic nerve atrophy, with pallor of the temporal half of the discs.

The voice in paralysis agitans is monotonous and the words often run together; whereas in multiple sclerosis the voice is often whining in character; the syllables are usually separated (so-called "stacatto") and the fundus is normal.

Hysteria, that functional prototype of multiple sclerosis, which, though a state or condition rather than a disease, may simulate almost every disease in nosology, must be reckoned with, though usually to be distinguished by the various stigmata, and the fact that the tremor may be more influenced by diversion and distraction.

Senile tremor is recognized by a fine tremor of limbs and head (the latter being rarely involved in paralysis agitans, and then late in the course of the disease), the tremor being finer than in paralysis agitans, and affects the head early, involves both extremities about the same time and is unassociated with rigidity.

Again, one must be on the alert for atypical forms, the so-called formes frustes of French writers which Erb believes occurs in about 20 per cent. of all cases, though Oppenheim believes this estimate too low rather than too high.

Paralysis agitans may occur without tremor, or the tremor may be latent, though elicited by active movements, or by plunging the limb into cold water. Oppenheim described a method of developing a false ankle clonus, by strongly flexing the foot dorsally and holding in this position for some time; when released, a rhythmical tremor may result which is characteristic of paralysis agitans. A slowly developing stiffness and unwieldiness in the limbs of one side occurring in an old individual is generally paralysis agitans. These symptoms usually begin at the distal parts of the extremities, so that there is difficulty in flexing or extending the fingers, one after another or abduction and adduction may be difficult. Frank reports that any attempt to move the toes on the affected side results in movement in the toes of the non-affected side, though the reverse is not the case. It has been observed that paralysis agitans patients have a tendency to write slowly and to construct much smaller letters than they formerly did.

*Third edition, page 148.

Moyer* describes a diagnostic sign of paralysis agitans which belongs to the early period of rigidity and which he designates "cog-wheel" resistance, and which is elicited by the examiner grasping the wrist of the patient with one hand and steadying the arm with the other, above the elbow. Rapid flexion and extension of the forearm is made when instead of an even movement, without resistance, if there is no involvement of motility, one, two or, perhaps, three hindrances to the movement are experienced by the examiner, which communicates to the hands of the examiner a jerky feeling. Though this is not sufficient to stop the movement of the extremity, so that it may be seen, it is readily appreciated by the hand of the examiner. After the extremity has been thus passively moved for a short time, the jerks will slowly disappear, to be followed by a return after a period of rest. Thus symptoms may occasionally be elicited in the lower extremity, in which the same method is pursued as when examining the arm, the patient being conveniently seated on a table and leg rapidly flexed and extended at the knee. F. Schultze** finds Stellwag's sign to be almost constantly present in paralysis agitans. This sign consists in enlargement of the palpebral aperture and infrequent winking, and is a well-known sign of exophthalmic goiter. Schultze considers it is of value in differentiating paralysis agitans from multiple sclerosis and hysteria.

Prognosis.—Text-books universally give an unfavorable prognosis as to cure and little encouragement as to relief, which we feel to be unjustifiable. While it is true that the results usually obtained are not encouraging, we believe it largely due to the fact that treatment is ordinarily not sought or given until late in the course of the disease, and owing largely to medical nihilism, the treatment is neither systematic or intensive. Certainly degenerated organs or tissues cannot, with our present knowledge, be regenerated, but it appears that the degeneration may possibly be arrested, as has been demonstrated in locomotor ataxia, so that if treatment be instituted early, a clinical cure may be possible.

Treatment.—With the etiology and pathology in an unsettled, even chaotic, state, the treatment is necessarily empirical and uncertain, though symptomatic treatment usually affords relief from the distressing symptoms, tremor, rigidity and insomnia, in all stages. The characteristic mental depression should be met by encouragement and the assurance of relief, since the mental attitude has much to do with the result. The patient should be guarded against cold, and so far as possible from emotional disturbances and mental and

physical strain. Dercum, in the recently published Handbook of Medical Treatment,* states it is one of the few diseases in which rest treatment is not applicable, and believes because the patient feels better when in motion, such as when seated in a moving train, an automobile, or in a rocking chair, that it is beneficial. Charcot treated many cases by means of a jolting or vibrating chair with temporary benefit. Notwithstanding, we feel that no permanent improvement can be expected from such treatment, and rest as near physiological as possible, under sedation, is the rational procedure. Neurasthenics usually feel best when actively employed, nevertheless rest treatment is universally recommended. Swift,** after subscribing to the opinion of an Italian author, Rizzuto, who wrote "no treatment is of any avail," reports a case treated with slow moving exercises taken for fifteen minutes, three times a day, with marked improvement so long as the exercises were continued.

A few writers recommend hot baths; others contend they aggravate the condition and advise the use of warm or cool baths; however, these may usually be regulated by the effect, if not by the feelings of the patients, though we would expect either extreme to be injurious. Liquor, tobacco, tea and coffee should be used very moderately, if at all.

The drug treatment is largely symptomatic, principally sedatives, to overcome the irritability of the neurons and procure rest and sleep for the patient, and eliminants to carry off excessive waste due to increased activity of the nervous and muscular systems. Probably the most effective sedative in this disease is hyoscine hydrobromide, reinforced, at times, by bromides, preferably calcium bromide, which should be given in sufficient quantities to control the rigidity and tremor and secure sleep—at least eight hours each night and one or more during the day, and the patient encouraged to rest in bed so long as he does not become restless. Sedatives may disclose a dangerous debility of the organs of vegetative life, so that judgment and skill will be requisite to meet the resulting depression.

Besides the various glandular extracts, prescribed as apparently indicated in each individual case, the calcium salts appear rational, if not scientific, in all cases, and may contribute to the favorable results.

Iodides, especially the syrup of the iodide of iron, are occasionally helpful.

CASE 1. M. B., aged 53, machinist, married; examined July 31st, 1919, obtaining history of progressive stiffness, weakness and tremor of the right hand of several months' duration, recently extending to left forearm and both legs.

*Jour. American Medical Assn., Dec. 30, 1911.
**Deutsche Med. Wochenschr., 1911, No. 44.

*Edited by John C. Da Costa, Jr., M.D.
**Jour. A. M. A., December 16, 1916.

Family History.—Negative.

Personal History.—Does not recollect ever previously having the service of a physician; liquor rather freely until three years ago, none since; smokes freely and did chew until past few weeks; one cup coffee daily. Reports that he sleeps well, but his wife states he frequently jerks and jumps in his sleep; unable to use knife at table or carry liquids to mouth on account of the tremor; bowels normal; bladder acts once or twice at night; no pain or dizziness; impotent past year.

Objective Examination.—Typical tremor, facies, attitude and gait, though drags right foot when off guard; faint arcus senilis; all teeth extracted three weeks ago on account of decay and the presence of pus; tongue heavily coated, tendon reflexes of arms exaggerated but equal; epigastric and abdominal reflexes absent; knee jerks considerably exaggerated, but equal; plantar reflexes normal; no pathological reflexes; no ankle clonus; urinalysis negative save excess of phosphates. Placed on parathyroid, hyoscine hydrobromide which was later temporarily reinforced with calcium bromide, and thereafter was also given mixed glands.

Improvement was slow and irregular the first month, then marked and rapid, patient returning to his home out in the state. Patient's wife wrote September 12, 1919, that "his nervousness has almost left him and he is just fine. Sleeps like a baby," and again on October 16, 1919, that he "is well both mentally and physically and is gaining weight." November 3, 1919, reports in person; says he "feels well in every particular." He does not drag his foot; able to cut his meat and carries fluids to mouth normally. Virility returned. Still unable to elicit epigastric and abdominal reflexes and unable to account for their absence. December 10, 1919. Daughter, just returned from visiting patient, reports that he says he is normal in every particular and she adds that "he certainly appears so."

CASE 2. W. S. S., farmer, aged 66, married; examined July 7, 1919. Patient states that he has been nervous for fourteen years, with increasing tremor and rigidity the past two years. Left arm first affected, which later extended to the hand; has typical pill-rolling motion of forefinger and thumb; right arm slightly involved, but legs not affected. Some tremor of head. Has dizziness and weakness at times; would fall if he did not support himself or sit down; cramps in calves.

Family History.—Negative save father alcoholic and died at he age of 69 years from paralytic stroke, having had paralysis of right arm for five years prior to fatal stroke.

Personal History.—At age of 28 had an extensive abscess of right side extending from axilla to hip, otherwise negative; no liquor; smokes pipe freely; three cups of coffee daily until a few years ago, since which uses but one cup daily; sleep ordinarily good, but recently is only fair; appetite good; bowels constipated; kidneys act normally; no pain, except fronto-parietal headache when he gets warm.

Objective Examination.—Marked arcus senilis; severe pyorrhea, teeth badly decayed, several loose; tongue coated; impacted cerumen both ears; epipharyngeal glands enlarged; blood pressure: systolic 125, diastolic 85; heart and lungs normal; all physiological reflexes normal; no pathological reflexes, save double Sankler; no ankle clonus; no Kernig's sign; second degree flat foot; urinalysis negative. Prescribed hyoscine hydrobromide, grain 1/200 every four hours and 1/20 of a grain desiccated parathyroid gland three times a day.

July 12, 1919. Sleep improved; dizziness relieved; had three teeth extracted and impacted cerumen removed from external auditory canals. July 16, 1919. Tremor considerably improved; sleep, appetite and

bowels normal. Patient returned home contrary to advice but with expressed intention of continuing under treatment, but have never heard from him, though I wrote him November 9, 1919, inquiring of his condition to embody in this report.

CASE 3. D. D. M., aged 71, married, laborer, though recently a watchman on account of physical condition; from town in Missouri; examined October 17, 1917, when a history of progressive nervousness for several years was obtained.

Family History.—Negative.

Personal History.—Negative; no liquor, chews tobacco moderately, no coffee for several years; more or less insomnia; appetite good; bowels irregular; kidneys act normally; no pain; impotence of several years' standing; tremor and weakness began in left forearm and hand, extending to right forearm and hand, thence about same time to both legs. Has been unable to carry liquids to mouth or to sign his name with a pen for three or four years, and not able to sign name with a pencil for several months.

Objective Examination.—Very severe coarse tremor of forearms and hands, worse in left, with typical pill-rolling tremor of forefingers and thumbs, partially controlled temporarily by volition, also typical attitude and gait, scarcely able to walk; facies not so marked. Urinalysis negative save faint trace of albumin and three hyaline casts to field; eyesight very defective. Oculist reports vision, R. E. 4/120; L. E. movement of hand at six inches; pupils react very slightly to light and convergence; lenses dense; atrophy of optic nerves. Has but one tooth which is apparently diseased and four decaying roots.

Treatment.—Hyoscine hydrobromide, gr. 1/200, parathyroid, gr. 1/20; which was followed by noticeable improvement in two weeks but did not control the insomnia, so that veronal was given at bedtime, and the dose of hyoscine gradually increased until gr. 1/64 was given every four hours, which was followed by marked improvement in all his symptoms when it was reduced to 1/100 and finally to 1/200 grain, three times a day. Patient has continued under treatment which has varied from time to time, the hyoscine being replaced at times with small doses of bromide of calcium and mixed glands being given occasionally. At present is cheerful, says he sleeps better than for years, feels well and is perfectly comfortable; writes some, notwithstanding his blindness; able to carry fluids to his mouth and carries glasses of water to patients when in the hospital during his visits to the city; tremor scarcely noticeable at times, when at rest; no rigidity; body slightly bent in walking, but straightens upon request; gait probably normal for one with his degree of blindness, and certainly he has not the general appearance or the gait of paralysis agitans.

CASE 4. Mrs. B., aged 43, married, no children; visited December 10, 1918. Patient gave a history of tremor for over three years, beginning in right index finger, extending to forearm, then to left forearm, with stiffness and weakness which also affects the legs.

Family History.—Negative.

Personal History.—Typhoid fever 25 years ago, complete recovery; less than one cup of coffee daily; no history of previous worry, stress, injury or shock. Sleep is usually good and prolonged though occasionally difficulty in falling to sleep; appetite and digestion normal; bowels moved only with purgative; kidneys act normally; amenorrhea for several months; weight 194½ pounds.

Diagnosis had previously been made by the family physician, Dr. T. A. Martin, by whom the patient was referred, and confirmed by two local neurologists, one of whom refused to prescribe because, he informed the patient, treatment was of no avail.

~~This is a sample of writing
the first since illness -
Progress good and
Dissatisfactory Thanks to
your skill & vigilance.~~

Fig. 9. Handwriting of Dr. X., August 3, 1921. From an unsolicited note.

Objective Examination.—Typical facies, tremor, speech and attitude; festinating gait, stops only by running into wall; marked mental depression. Blood pressure 120; all tendon reflexes greatly exaggerated, but equal; no pathological reflexes; no ankle clonus; unable to place hands behind back or turn head latterly on account of rigidity; legs myxedematous with tenderness to pressure; legs nearly as large at ankle as about calf; circumference midway between calf and ankle $14\frac{1}{2}$ inches. Urinalysis negative. Mild degree of pyorrhea with uncertain Roentgenographic findings of the teeth.

Patient given varying quantities of parathyroid, thyroid, corpus lutea, ovarian extract, hyoscine hydrobromide and calcium.

January 25, 1919. Patient notices relaxation of the muscular rigidity and relief of tremor.

February 5, 1919. Decided improvement in rigidity; walks almost straight, turns head nearly to full and places hands behind back; feels well, with relief of mental depression, though she volunteers the information that notwithstanding the marked relief experienced, she dwells almost constantly upon the hopeless prognosis which had been made.

May 22, 1919. Greatly improved; normal expression; is getting about; attended a dance and danced two set without ill feeling; weight 164 pounds; mental attitude cheerful, but unable to free her mind of the incurability of her disease.

September 17, 1919. Says she is fine in every way but is weak; no tremor; reports that she sleeps "like a baby" during the night and about an hour during the day and eats "like a horse." Has been taking no sedative for three weeks.

November 20, 1919. Is getting about; says she can ascend and descend stairs as well as anyone. Legs have regained normal shape, circumference midway between calf and ankle 12 inches (previously $14\frac{1}{2}$ inches), circumference calf 15 inches, ankle 8 inches.

This patient has suffered a number of psychic traumas since coming under our care on account of alarming and serious illnesses with one fatality in the family, and recently has been informed that all cases of paralysis agitans become insane. The effect of the latter has been most disastrous and the temporary effect of previous mental shocks was always clearly noticeable, being marked by increased rigidity and weakness, with great mental depression, though has continued free of tremor, except

when she undertakes to exert her arms as in dressing her hair.

December 17, 1919. Patient cheerful; found her dressed to go to the business district shopping; attended picture show last evening; no tremor; is relieved of the rigidity in arms; volunteers the information that she feels better and more cheerful than for several years. Sleeps good and appetite excellent; bowels active without purgatives. The latter is a marked change, since bowels had not moved for many months without powerful purgatives.

CASE 5. Dr. X., aged 68, practicing physician was admitted to the St. Louis Baptist Hospital, June 10, 1921, on account of general debility, nervousness and incapacity for work with loss of appetite.

Past History.—Patient had the usual diseases of childhood. Later in life had pneumonia, typhoid fever, spinal meningitis and for a number of years has had diabetes mellitus and chronic Bright's disease. Patient states he has a valvular heart lesion. He has always been of a nervous temperament. He was operated upon three times for hemorrhoids, and has had several accidents, including one which was severe, having fallen three stories on a concrete floor in April, 1920. Patient says he has been a heavy drinker, and extremely sociable. Patient denies venereal infection. Has had paralysis agitans of increasing severity for several years. For over a year past has been unable, single handed, to carry fluids to his mouth or to write. He uses a rubber stamp to sign checks and letters. Impotentia erigendi.

Family History.—Negative. Urinalysis disclosed trace of albumen, faint trace of sugar, large amount of indican, few amorphous urates, and a few granular casts, pus cells and occasional erythrocyte.

Neurological examination made July 12, 1921, negligible save characteristic symptoms of paralysis agitans affecting mainly both arms. Has severe pyorrhea.

July 22, 1921. Patient reports "a remarkable change has occurred in my condition; I can now carry fluids to my mouth, the first for over a year, and can do so without any apparent tremor (demonstrates with full glass of water). I am also able to write without effort." Patient continued treatment for several months thereafter, and now informs me that he has written long personal letters.

CASE 6. W. E. S., claim auditor, aged 53, married; was examined at the Missouri Pacific Railway Hospital, July 22, 1921, on account of nervous prostration. In addition to neurasthenia, I found patient afflicted with paralysis agitans, the tremor and rigidity affecting more particularly the arms, preventing patient from writing. Patient came under my direct professional care two months later, having recovered his general health and regained much of his lost strength, but with no improvement in the tremor or rigidity. Dr. Robt. Barclay reported devitalized teeth, amalgam fillings, and free use of tobacco as probable etiological factors. Patient made rapid improvement so that he was able to sign letters and return to work within six weeks after beginning treatment, and some three months thereafter he was relieved of all symptoms of paralysis agitans.

SUMMARY

1. The ultimate cause of paralysis agitans has not yet been proven.

2. The post-mortem findings are so variable and contradictory that the pathology is uncertain.

3. The supposition that it is due to endocrine dysfunction is apparently the only theory advanced which reconciles every reported post-mortem finding.

4. Treatment is symptomatic and necessarily empirical, but sufficiently definite and effectual to justify intensive treatment under proper professional supervision with the probability of relief in all stages and the possibility of a clinical cure, arrest or amelioration in the early stage.

Metropolitan Building.

SCOPOLAMIN-MORPHIN SEMINARCOSIS IN THE SECOND THOUSAND DELIVERIES IN BARNES HOSPITAL*

O. S. KREBS, B.S., M.D., and L. R. WILSON,
A.B., M.D.

From the Department of Obstetrics, Washington University School of Medicine.

ST. LOUIS

In studying the second thousand cases delivered in Barnes Hospital, it was our opinion that a comparative study of cases delivered under various circumstances might point out quite definitely certain distinct advantages or disadvantages of the methods used. Scopolamin or hyoscine-morphin has been used rather freely in the obstetrical service since 1915, and the results obtained under this treatment during this time have been so very encouraging and its popularity has so increased that we are now using it practically as routine in primiparous labors. However, the method has not been favored in all quarters; the reasons for this will not be discussed in the scope of

this paper. For this reason, chiefly, we felt a critical review of the results in these cases would be of value and a discussion of the method and its advantages would be quite in place.

Since the preparation of the data and the reading of this paper our attention has been called to a recent article by Opitz of Freiburg.

Erich Opitz, in *Muenchener Medicinische Wochenschrift*, Feb. 24, 1922, stated that among 4,279 births, 2,242 of which were effected in twilight sleep, only 2.1 per cent. of the children born in twilight sleep died during the first nine days, while the mortality among children delivered without the use of twilight sleep reached 3.75 per cent. He says that the danger in twilight sleep depended upon the amount of morphin used. He feels that if twilight sleep causes any injuries to mother or infant, these are due exclusively to the method employed or to improper drugs. Good results can be obtained only by operators who have a perfect command of the technique, which requires careful study.

Our study is based on the second thousand cases delivered in Barnes Hospital, St. Louis. These cases are included in the obstetrical numbers from 2225 to 3384 inclusive. Abortions, gestations less than 24 weeks, and cases not delivered at the first admission, are not included.

We follow a rather definite routine in the management of our cases in labor. A large majority of the primiparæ receive scopolamin-morphin or hyoscine-morphin seminarcosis during their labors. In this series approximately 75 per cent. of the primiparæ, white and colored combined, received it. When the patient is ready for delivery, she is brought to the edge of the delivery bed, scrubbed up and a general anesthetic administered. After the head has descended to the floor of the pelvis, has completely rotated with the sagittal suture lying in the antero-posterior diameter of the pelvis, with the small fontanel lying directly below the symphysis pubis, when a considerable segment of the head is visible and distends the vulvar ring to approximately its elastic limit, the forceps is applied and the head is lifted over the perineum. Prior to delivering the head, the vagina and the levators are ironed out by introducing first the well-lubricated finger, then two, three, four fingers and the whole hand into the vagina. If this preliminary preparation is not sufficient to permit of delivery of the head without tearing, an episiotomy is done, being either of the single or double medio-lateral or the median type, depending on the requirements of the case at hand. Very few of the patients receive no anesthetic whatever, and practically all the

*Read before the Washington University Medical Society, March, 1922.

cases receiving scopolamin or hyoscin-morphin during the labor get chloroform or ether during the delivery. Chloroform is the anesthetic most generally employed. Ether is used in toxemic cases and wherever there is a definite contraindication to chloroform. After the child is delivered the mucus and aspirated fluids are milked from the air passages, and after the cord has ceased pulsating it is tied. Following the birth of the child a full cubic centimeter of some liquid pituitary preparation is injected intramuscularly to stimulate uterine contraction and guard against hemorrhage in the third stage. When the placenta has separated spontaneously it is expressed by abdominal pressure over the fundus; some sterile ergot preparation is then administered intramuscularly. The incisions or injuries are then repaired with catgut sutures and the patient returned to her bed. In the case of multiparous patients the chief difference lies in that forceps is not so frequently used and that episiotomy incisions are seldom necessary.

We use scopolamin or hyoscin-morphin seminarcosis as a first stage measure. When the uterine contractions are strong and occur at regular intervals and usually when there is at least two fingers' dilatation in the primiparous patient, seminarcosis is begun. In some cases where the contractions are painful and of good character and frequency, it is begun with practically no cervical dilatation. In these cases we are always quite sure in our own minds, however, that the drugs will not stop labor entirely. In the multiparæ, on the other hand, the procedure is usually begun with the first regular contractions that are painful.

The patient is always prepared for delivery before seminarcosis is begun and, after the usual preparation, is sent to one of the delivery rooms. Her ears are stuffed with cotton moistened with oil and her eyes are covered with gauze held in place by adhesive strips. The initial dose of scopolamin is 1-133 grain or 1.5 c.c. of the scopolamin hydrobromide; stable. The hyoscin hydrobromide contains 1-133 grain to the c.c., and we use it in the same dosage—1-133 grain for the average woman. With the first injection, separately or combined, is given one-half grain of narcophin, or one-sixth grain of morphin sulphate. These injections are given subcutaneously. This point is very important as it is not desirable to get the scopolamin to act quickly; on the contrary, one wishes it to take possession of the patient very slowly. The first injection usually causes dryness of the mouth and throat and a flushed condition of the face. The patient is encouraged to drink water freely at this stage.

The second injection is given usually 45 minutes after the first one. This injection is usually as large as the first injection—the narcophin or morphin is never repeated after the first injection. We test the degree to which the patients are under the influence of the drug by a very simple yet accurate method. Before the second injection and before each contemplated subsequent injection, the patient is requested to put her index finger to the tip of her nose, her eyes being covered. If she succeeds in doing this promptly she still retains locomotor co-ordination and the contemplated injection is given; if, however, she moves her finger around vaguely and misses the mark, she has lost locomotor co-ordination and the injection is omitted, or the dose is reduced, for the patient has the desired amount of the drug. In most cases this stage is reached shortly after the third injection, but in not a small number before the time for the third injection.

The third injection is usually given 45 minutes after the second one. If the patient at this time shows signs of going under the influence of the drug, such as drowsiness or sleeping between pains, but still manifests locomotor co-ordination, the third injection is reduced to 1-200 grain or less for the average woman. If no such signs are present the original full dose of 1-133 grain is given.

After the third injection most patients remain sufficiently scopolaminized for two hours or longer. At the expiration of this period full cervical dilatation has taken place in most cases and further injections are unnecessary and are to be avoided. The first stage of labor is over, or nearly so, and the time is close at hand at which the seminarcosis should be deepened to complete anesthesia by one of the general anesthetics.

There are, however, numerous cases in which the first stage of labor is protracted for many hours, and even for a day or two. This condition is especially true in some primiparous women in whom the membranes have ruptured before the onset of labor, and some multiparous women in whom thorough repair of cervical lacerations together with fixation of the uterus forward by some abdominal operation has been performed. Some of these women suffer intensely and for many hours during the first stage of labor until dilatation is at last complete and final delivery is possible. It is in these cases that the scopolamin method has proved itself so valuable; it is in these cases likewise that the administration of the drug must be watched most carefully. The amount of scopolamin or hyoscin given and the time of the injections depends entirely upon the degree to which the patient appears to be under the influence of the drug. The adminis-

tration of the drug should be continued until the patient has lost locomotor co-ordination; when this stage is reached it should be maintained by small and infrequent doses.

The loss of locomotor co-ordination marks the one boundary of seminarcosis. The patient must cross this boundary which is "just enough" and she must be kept from crossing the other boundary which is "too much." This other boundary is reached when, during a labor pain, the patient's pupils no longer show the usual dilatation at the height of the contraction, because they are already dilated to the maximum by the action of the scopolamin on the terminals of the third nerve in the iris. These are the two boundaries which we watch by frequent tests during the administration of scopolamin or hyoscine for seminarcosis. We test for the presence or absence of locomotor co-ordination until we know that the patient has crossed the first boundary, and we test the pupils from time to time during a contraction to assure us they are still capable of dilatation, and that the patient has not crossed the second boundary. Keeping the patient on this narrow strip constitutes scientific seminarcosis.

When the seminarcosis is intensified to general anesthesia by a general anesthetic at the time of delivery, great care must be exercised that not too much anesthetic is given. Ten to fifteen drops of chloroform on a thin gauze mask are usually sufficient to render the patient completely relaxed. There is an inclination toward giving too much chloroform and by so doing the mother is not only chloroformed to a much deeper degree than the occasion demands, but the fetus is also chloroformed so deeply that it is bound to be born apneic, to become asphyxiated and to require resuscitation.

Scopolamin seminarcosis is most applicable during the first stage of labor, particularly in the primiparous patient, or in the multiparous patient where previous repair work has been done on the cervix, or where the first stage is protracted and painful due to premature rupture of the membranes. In cases of delivery through the natural passages in women, who, on a previous occasion, have been delivered by abdominal Cesarean section, it is of the greatest importance to prevent all straining on the part of the parturient woman and to extract the child as soon as dilatation is completed, so as to keep all strain as far as possible from the uterine scar. It also finds a field of usefulness in cases of eclampsia where the patient is having convulsions, where the patient is in active labor, and where forced delivery is not indicated. In these cases it seems to combat successfully the convulsions and renders the patient less sensitive to ex-

ternal stimuli which frequently excite convulsions. In cases of pulmonary tuberculosis and in cardiac disease, seminarcosis is also successfully used.

This method can be employed successfully in well appointed homes, provided the obstetrician remains at the bedside throughout the course of the seminarcosis, and provided he has skilled assistance. It is unreasonable to say that the method cannot be employed by the general practitioner, for if the practitioner is a qualified obstetrician he can use this method as successfully as the specialist. If he is not a qualified obstetrician, no method and no parturient woman are safe in his hands.

In the total labor average we see the numbers do not represent the sum of the three stages. This is explained by the fact that in arriving at the total labor average, cases were included where the exact time of the first and second stages was not separately known, but was considered together. The above table shows the lengths of the stages of labor for the four classes of patients, first, where scopolamin or hyoscine-morphin seminarcosis was not used, and second, where scopolamin or hyoscine seminarcosis was used.

White Primiparae.—The average length of the first stage of labor in the white primiparous patient where seminarcosis was used was 1 hr., 37 min., longer than where no seminarcosis was used. We account for this increase by the fact that most primiparae receive scopolamin or hyoscine-morphin seminarcosis, and the fact that they did not receive it means that they came in late in labor—in such cases the time of the onset is only relative and not accurate. Most primiparae expecting scopolamin or hyoscine-morphin seminarcosis come to the hospital directly after the first contraction is experienced, so we have them under supervision from the very onset; many of them come to the hospital before they are in labor.

That scopolamin-morphin seminarcosis should not be held responsible for lengthening the first stage of labor we can cite numerous cases where scopolamin or hyoscine-morphin seminarcosis was begun very late in a protracted labor, perhaps late in the second stage. Scopolamin or hyoscine-morphin seminarcosis in these cases can have had no effect on the first stage; however, these numbers are used in compiling the totals. For example: White primiparae, first stage, 39 1/3 hrs.; second, 7/15 hrs.; third, 1/20 hrs. Scopolamin-morphin given only for the last five hours. Another: First stage, 22 5/6 hrs.; second, 5/60 hrs.; third, 8/60 hrs. Scopolamin-morphin the last two hours.

Most people claim that scopolamin or hyoscine-morphin seminarcosis lengthens the second stage of labor. In our series there is a

TABLE NO. I
LENGTH OF STAGES OF LABOR

Class	Number	Scopolamin Seminarcosis	First Stage Average	Second Stage Average	Third Stage Average	Total Labor Average
White Primip.	62	No	13 hr.	1 hr. 49 min.	19 min.	15 hr. 56 min.
Black Primip.	19	No	18 hr. 12 min.	1 hr. 42 min.	28 min.	23 hr. 1 min.
White Multip.	286	No	8 hr. 50 min.	49 min.	17 min.	9 hr. 56 min.
Black Multip.	33	No	10 hr. 15 min.	52 min.	19 min.	11 hr. 24 min.
Total	400					
White Primip.	349	Yes	14 hr. 37 min.	2 hr.	18 min.	16 hr. 33 min.
Black Primip.	25	Yes	20 hr. 15 min.	3 hr. 9 min.	21 min.	21 hr. 15 min.
White Multip.	211	Yes	10 hr. 24 min.	1 hr. 14 min.	15 min.	11 hr. 36 min.
Black Multip.	15	Yes	16 hr. 18 min.	3 hr. 4 min.	21 min.	19 hr. 53 min.
Total	600					

difference of only 11 minutes. Perhaps it will be said the reason for this insignificant difference is the fact that most of our primiparæ are delivered by forceps after the head distends the vulva, but since those cases where scopolamin or hyoscine-morphin seminarcosis is used, and those cases where it is not used are thus treated alike, the figures are what we expect. We can see that the second stage would be lengthened if we depended on the patient to exert her force to deliver the child. Not only would the labor be lengthened, but the patient would have to suffer pain at its height; an anesthetic sufficient to relieve the pain would interfere with the uterine contractions. The relative lengths of the second stages in cases where scopolamin or hyoscine-morphin seminarcosis is used and in cases where it is not used should be practically the same in our series, as it is, because in both classes the patients are handled in the same way—complete anesthesia, episiotomy if necessary, and application of forceps when the head distends the vulva.

The variation in lengths of the third stage of labor is insignificant throughout the whole series.

Black Primiparæ.—The same reason holds good for the increased time of the first stage in the colored primiparæ who received scopolamin or hyoscine-morphin seminarcosis as in the cases of the white patients of the same type. In the black primiparæ without scopolamin or hyoscine-morphin seminarcosis the length of the second stage of labor was 1 hr., 42 minutes, while in the cases where scopolamin or hyoscine-morphin was used the length of the second stage was 3 hrs. and 9 minutes. Scopolamin or hyoscine-morphin was used

chiefly in the colored patients where a long and hard labor could be prophesied and by the nature of the case alone; in those instances it was quite proper that the second stage should be long. In the colored primiparous patient only 75 per cent. of the pelvis were normal, while there was an incidence of 11.3 per cent. of generally contracted pelvis, 9.08 per cent. of generally contracted rachitic pelvis, and 4.54 per cent. of funnel pelvis.

White Multiparæ.—In the white multiparæ without scopolamin or hyoscine-morphin the length of the first stage of labor was 8 hrs., 50 min., and with scopolamin or hyoscine-morphin, 10 hrs., 24 min., or a difference of 1 hr. and 34 min. This increased period is not so largely accounted for by the long first stage and seminarcosis being begun late in the labor with consequently no effect on the first stage as in the case of the primiparæ, but by the fact that in a great many of our multiparæ, quite a large majority in the private patients, the patient enters the hospital before labor begins and labor is induced with castor oil and pituitary preparations and scopolamin-morphin seminarcosis is begun a short time after the contractions become regular and often before there is any appreciable cervical dilatation.

For example: White multiparæ; induction with castor oil and pituitrin; first stage, 5 hrs., 37 min.; second stage, 1 hr., 18 min.; third stage, 20 min. Total, 7 hrs., 15 minutes. Scopolamin-morphin for 6 hrs. and 20 minutes.

Another example: First and second stages, 6 hrs., 15 min.; third stage, 10 min. Total, 6 hrs., 25 minutes. Scopolamin or hyoscine-morphin for 6 hrs., 23 minutes.

Of our white multiparæ only 35 per cent.

TABLE NO. II
RESULTS OF SEMINARCOSIS

Class	Type Semi-narcosis	Perfect		Perfect Pain		Perfect Events		Partially Successful		No Success		No Record		No Fatigue		Fatigue		
		W. Prim.	(12)	Narcophin	3		3		2		4		4		2		4	
W. Mult.	(4)			Scopolamin	3													
W. Mult.	"			"	4													
B. Prim.	(0)			"														
B. Mult.	(0)			"														
Total	(16)																	
Corrected																		
W. Prim.	(75)	Morphia																
W. Mult.	(40)	Scopolamin																
B. Prim.	(3)	"																
B. Mult.	(2)	"																
Total	(120)																	
Corrected																		
W. Prim.	(35)	Morphia																
W. Mult.	(17)	Scopolamin																
B. Prim.	(8)	S & D																
B. Mult.	(5)	"																
Total	(65)	"																
Corrected																		
W. Prim.	(199)	Morphia																
W. Mult.	(115)	Hyoscin																
B. Prim.	(12)	"																
B. Mult.	(5)	"																
Total	(331)	"																
Corrected																		
Grand Total	(532)	All Types Combined	421	79.1%	21	3.9%		26	4.8%	25	4.6%	39	7.3%	144	91.1%			
Corrected				85.3%		4.2%			5.2%		5.07%							

were given hyoscine or scopolamin-morphin. The rather small incidence of scopolamin or hyoscine-morphin seminarcosis in this class is due to the fact that many enter the hospital too late for it. The slower and harder labors in the multiparae are usually in the hospital a sufficient time that seminarcosis can be induced, which accounts for the 25-minute increase in the length of the second stage of labor with scopolamin or hyoscine-morphin seminarcosis.

Black Multiparæ.—The increased average periods of labor in the black multiparae with scopolamin or hyoscine-morphin over the same class without it is accounted for by the fact that the majority of colored patients do not receive scopolamin-morphin seminarcosis, 75 per cent. of them, and that it is used in most instances in protracted and difficult labors; in many where patients were told to enter the hospital before going into labor to have labor induced for pelvic contraction, or where difficult labors were to be expected.

We do not feel then, that scopolamin or hyoscine-morphin seminarcosis used as we use it, in labor managed as we manage it, has any appreciable effect on lengthening the stages of labor. The apparent lengthening above described is chiefly due to the fact that it is in the labor of longer duration that the method is particularly applicable.

In the 1000 cases reported in this series, scopolamin or hyoscine-morphin seminarcosis was used in 78 per cent. of the white primiparae, 52 per cent. of the black primiparae, 35 per cent. of the white multiparae, and 25 per cent. of the black multiparae, or in 75 per cent. of the total number of primiparae and 54 per cent. of the total number of multiparae. Scopolamin or hyoscine-morphin seminarcosis was used in a total of 600 cases or 60 per cent.; however, in this number there were 68 cases in which seminarcosis was incomplete or atypical, being begun too late in labor to give the average number of injections, or where the injections were discontinued during the labor for some reason or other, or cases where the injections were not given in the routine manner as outlined by the chief of the obstetrical service. For the purposes of comparison only the cases of complete seminarcosis following the routine dosage were included in the table above.

The earlier cases of this series were those in which narcophin and scopolamin hydrobromide were used. Early in the war period of this country our supply of narcophin was threatened so the use of morphin in its stead was begun. While we still had a considerable supply of scopolamin hydrobromide on hand, we began to use the hyoscine hydrobromide in

liquid form, feeling that at any time we might have to do without the scopolamin, which event later took place. Comparatively recently, in the last year and a half, we began to use the tablet form of scopolamin hydrobromide with very satisfactory results and at a considerable saving.

During the course of the labor under scopolamin or hyoscine-morphin seminarcosis the patient is questioned from time to time to see if she is under the influence of the drugs and locomotor co-ordination is tested. When the stage is reached that locomotor co-ordination is lost we endeavor to keep the patient at that depth by infrequently repeated small doses of the drug. After delivery the patient is returned to her bed and is left quiet and undisturbed and usually enjoys a sound sleep for several hours. After the patient awakens from this sleep, or from six to twelve hours after delivery, if it took place during the night, the patient is questioned to see what she remembers of what happened or her recollection of pain after the first injection of the drug was given. A careful note is written in each case stating the number of injections the patient remembers having received, the amount of pain she was suffering at the time of the injections that are remembered, certain events that stand out as memory islands in the course of the seminarcosis, either certain things that the patient or some attendant may have said, or certain things that may have taken place, such as a vaginal examination or rupture of the membranes, etc. In regard to the pain suffered we try to determine, relatively, its degree; whether it was worse than in preceding labors, if there were any; if the pain was excruciating, or if it was merely nagging and prevented the patient from sleeping. Also it is a noticeable fact that the fatigue and exhaustion are rarely in evidence after a labor conducted under this method, to which we attach considerable importance.

In our analysis of scopolamin or hyoscine-morphin seminarcosis cases we have divided the results into several headings for each class of patient. By a perfect seminarcosis we understand that after a reasonable time was allowed for the patient to come under the influence of the drug there was no recollection of pain or of any happenings. The next two headings, "perfect for pain" and "perfect for events," can be considered together. The reckonings all began at a point of time that we felt was reasonably long after the injections were begun. "Perfect for pain" implies that there was no pain suffered after that time, the patient frequently answering the question by saying that the pains stopped entirely. Under the heading "perfect for events" it will be noticed that there are no

TABLE NO. III

Class	Scopolamin Hyoscine Seminarcosis	Number	Stillborn	Per Cent.	Macerated	Per Cent.	Asphyxiated	Per Cent.	Resuscitated Later Died	Per Cent.	Immediate Mortality	Per Cent.	Total Deaths	Per Cent.		
White Primip.....	Yes	312	2	.6	0	1.8	16	.05	1	.3	2	2	8	2.5		
Black Primip.....	Yes	23	2	8.7	1	4.3	0	0	0	0	1	13.04	3	13.04		
White Multip.....	Yes	172	1	.5	0	0	0	0	0	0	1	5	1	8.3		
Black Multip.....	Yes	12	0	.0	1	8.3	0	0	0	0	1	8.3	1	8.3		
Total.....		519	5	.96	2	.38	6	1.15	25	4.7	1	.18	7	1.34	13	2.5
White Primip.....	No	57	2	3.5	0	.0	0	1	1.6	0	0	2	2	3.5	2	3.5
Black Primip.....	No	19	0	.0	1	5.2	0	0	0	0	1	5.2	1	5.2	1	5.2
White Multip.....	No	279	1	.35	2	.71	1	.35	6	2.1	2	.70	3	1.07	4	1.43
Black Multip.....	No	28	0	.0	0	.0	0	0	0	0	0	.0	0	0	0	0
Total.....	No	383	3	.78	3	.78	1	.26	7	1.7	2	.5	6	1.56	7	1.82
White Primip.....	Atypical	28	0	.0	0	0	0	0	1	3.5	0	0	0	0	0	0
Black Primip.....	Atypical	2	0	.0	0	0	0	0	0	0	0	0	0	0	0	0
White Multip.....	Atypical	35	0	.0	0	0	0	1	2.8	2	5.7	1	2.8	0	1	2.8
Black Multip.....	Atypical	3	0	.0	0	0	0	0	0	0	0	0	0	0	0	0
Total.....	Atypical	68	0	.0	0	0	0	1	1.4	3	4.4	1	1.4	0	0	1
Grand Total.....	All Types	970	8	.82	5	.51	8	.82	35	3.5	4	1.4	13	1.34	21	2.16

TABLE NO. IV
PRIVATE PAVILION CASES—2500 GRAMS AND OVER

Type	Number	Stillborn	Per Cent.	Macerated	Per Cent.	Asphyxiated	Per Cent.	Resuscitated Later Died	Per Cent.	Immediate Mortality	Per Cent.	Total Deaths	Per Cent.	
Seminarcosis No	275	1	.36	0	0	1	36	11	3.9	0	1	.36	2	.72
Seminarcosis Atypical	97	0	.0	1	1.03	0	0	2	2.02	0	0	1.03	1	1.03
Total	406	1	.24	1	.24	1	.24	14	3.3	0	0	.24	3	.73

notations; this would indicate that there were no cases where pain was remembered and events not remembered, or rather shows the specificity of hyoscin or scopolamin-morphin seminarcosis for amnesia in regard to pain. There were certain cases, however, where the amnesia for pain was not perfect and where certain events were remembered. In these cases the relief from pain was sufficient to keep the patient comfortable until time for the administration of the anesthetic at delivery. This latter class of cases is included under the heading "partially successful." The next heading, "no success," needs no elaboration, meaning that the memory for pain was unaltered and that the patient knew at all times what was going on about her. The heading "no record" includes those cases where no post-seminarcosis interview was had with the patient; in some cases for good reasons, and in other cases without reason. In some cases no data could be obtained, as, for example, in patients with eclampsia that were comatose perhaps for a few days, and in other cases where the patients were deaf and dumb, or where foreigners could not be made to understand.

In the first series of cases where narcophin and scopolamin hydrobromide stable were used the results as based on totals are not quite fair for the reason that in four, or 25 per cent. of the cases there was no record as to the results of the seminarcosis. If this number is subtracted from the total and the percentage figured on the new basis, we would have perfect seminarcosis in 58.3 per cent. of the cases, perfect for pain in 25 per cent. of the cases, and partially successful in 16.6 per cent. of the cases.

Likewise in the morphin-scopolamin series if the same correction is made for the cases of no record, we would have perfect seminarcosis in 81.8 per cent. of the cases, perfect for pain in 5.4 per cent. of the cases, partially successful in 6.3 per cent. of the cases, and no success in 6.3 per cent. of the cases.

With a similar correction in the cases where morphin and the tablet form of scopolamin hydrobromide were used, we have perfect seminarcosis in 92.06 per cent. of the cases, partially successful in 3.1 per cent. of the cases, and no success in 4.7 per cent. of the cases.

Correcting likewise for the cases of hyoscin hydrobromide and morphin, we find perfect seminarcosis in 86.3 per cent. of the cases, perfect for pain in 3.8 per cent. of the cases, partially successful in 4.8 per cent. of the cases, and no success in 4.8 per cent. of the cases.

With the same corrections in our totals we

find perfect seminarcosis in 85.3 per cent. of the cases, perfect for pain in 4.2 per cent. of the cases, partially successful in 5.2 per cent. of the cases, and no success in 5.07 per cent. of the cases. In a total of 158 cases where the question of fatigue was investigated it was found lacking in 144 cases, or in 91.1 per cent.

For a comparison of the fetal mortality in scopolamin or hyoscin-morphin seminarcosis cases and in cases where it was not used see the following tables.

Table No. III shows the fetal deaths based on infants weighing 2500 grams and over.

Table No. IV shows the fetal deaths among Private Pavilion patients based on infants weighing 2500 grams and over.

Following are the clinical and pathological findings in the cases of fetal death with infants weighing 2500 grams and over. They are grouped under scopolamin-morphin and cases without seminarcosis:

Scopolamin-Morphin.

Stillborn:

- No. 2791. Toxemia of pregnancy, coils of cord about neck at delivery, induction of labor. No autopsy.
- No. 2968. Brow presentation, birth injury, subdural hemorrhage, fracture of premaxilla and right occipital bone.
- No. 2330. Cause of death undetermined. No autopsy.
- No. 3144. Prolapsed cord, traumatic injury to brain.
- No. 2651. Macerated: Face presentation. No autopsy.
- No. 2900. Cancer of cervix uteri and pyelitis in mother, maceration, multiple visceral hemorrhages.
- No. 2862. Prolapsed cord, maceration, general vascular congestion.

Died before leaving hospital:

- No. 3002. Died following operation; congenital atresia of pharynx, congenital opening of esophagus into bifurcation of trachea, massive bronchopneumonia.
- No. 3040. Induction of labor over a period of four days, difficult labor and delivery. No autopsy. Probable birth injury.
- No. 3174. Spina bifida, congenital anomalies of lower extremities.
- No. 3175. Spina bifida, congenital anomalies of lower extremities.
- No. 2312. Infant choked while nursing. No autopsy.

Without Seminarcosis.

Stillborn:

- No. 2593. Coils tightly about neck, cord torn at abdominal insertion, hemorrhage. No autopsy.
- No. 3111. Child dead on admission. Delivery attempted before entering hospital. Fracture of skull with compression of brain and hemorrhage.
- No. 3223. Congenital anomaly of heart with defect in interventricular septum near its base, subcutaneous edema, ascites, hemorrhagic pleural effusion, separation of axis and third cervical vertebra.

Macerated:

- No. 2741. Wassermann reaction positive in mother, maceration.
- No. 3245. Maceration.
- No. 3348. Maceration, osteochondritis, congenital syphilis.

Died before leaving hospital:

- No. 2875. Pyelitis in mother, prolapsed cord. No autopsy.
- No. 2717. Atelectasis, icterus, enlarged liver, splenic tumor. This was the third child that had died during the first few days of life all presenting the same clinical picture.

MATERNAL MORTALITY

White Primiparae.—In our series of 1000 cases there were two maternal deaths in the white primiparæ. The first was a patient 33 years of age. Pregnancy and labor were uncomplicated. About twenty-four hours after delivery, patient developed a bronchopneumonia. She died on the medical service six days postpartum of influenza and bronchopneumonia. No autopsy. The other was a patient 43 years of age, with a generally contracted pelvis, chronic cardiac valvular disease and chronic pulmonary tuberculosis. The patient was delivered by operative dilatation and low forceps for an R. O. P. position after a long, hard labor of 36 hours. There was no abnormal bleeding during the labor or at delivery, or thereafter. Before leaving the delivery room the patient became cyanotic, dyspneic, and the pulse became thready; blood pressure could not be gotten in the arms. All efforts at stimulation were of no avail and patient died one and one-half hours after delivery. The autopsy showed vegetative mitral valvular endocarditis, focal calcified pulmonary tuberculosis, chronic perisplenitis, and cholelithiasis. The autopsy did not explain the cause

of death and it was considered that the long and difficult labor in the elderly primiparous patient with chronic cardiac disease was the explanation, it being chiefly the result of exhaustion. The question of anesthetic in this case also arose, the patient having received scopolamin-morphin and chloroform. The pathologist decided that insufficient of any of the drugs was given to produce death in itself, but that combined with the various other features of the case, may have been contributory.

Black Primiparae.—There were no maternal deaths among the black primiparæ.

White Multiparæ.—There were three deaths among the white multiparæ. One was a patient 36 years of age, with the history of a normal pregnancy and with a normal pelvis. The labor lasted 10½ hours and the patient was delivered by mid-forceps; a second degree tear resulted. Bleeding during the labor and at delivery and during the third stage was moderate. Shortly after the patient returned to her room her pulse became thready, blood pressure could not be obtained in the arm and her respiration became labored. Stimulation was tried repeatedly and with various agents, but there was no response and the patient died about two hours after the delivery. Death was probably due to vasomotor paralysis following dilatation of the splanchnic vessels. No autopsy.

The second death among the white multiparæ was a patient 30 years of age. Patient entered hospital with a history of having had influenza and pneumonia one month previously and since then she had been confined to bed most of the time. The further history was obtained that for the last few days the patient had been having chills and periods of sweating. Patient was admitted with a normal temperature but with an accelerated pulse. About one hour after admission the patient delivered spontaneously, a few whiffs of nitrous oxide were given during the expulsion of the head. The day following delivery the patient had a temperature of 103 and there were chest findings that indicated some pathological process in the right lung at its base. The third day postpartum the blood culture showed pure culture of pneumococcus, Type 1. The patient died on the medical service eight days postpartum. The medical findings in the case were: Septicemia, puerperium (pneumococcus Type 1); endocarditis, acute; myocarditis, acute; chronic cardiac valvular disease (mitral insufficiency and stenosis, aortic insufficiency); bronchopneumonia; simple anemia. There was no autopsy.

The third maternal death among the white multiparæ was a patient 34 years of age who

entered the hospital with a blood pressure of 250/160 and the urine showed 40 grams of albumen per liter. The extremities and face were very puffy and edematous. The urine obtained by catheter was very small in amount and showed the albumen mentioned above, blood and many hyaline, granular and blood casts. The patient complained of a very intense burning in the epigastric region. Various methods of elimination were begun immediately on admission, but the patient's condition became more grave and immediate delivery was decided upon about ten hours after admission. The patient was delivered by Bossi dilatation and a high forceps operation; the child was premature but living, and continued to do nicely in the incubator room. There was very little bleeding during the delivery. About 45 minutes after delivery the pulse became very weak and the blood pressure could not be read. The urinary output from the time of admission until shortly before death had totaled 130 c.c., which was very small considering the amount of fluids that had been forced by mouth, by hypodermoclysis and rectally. The patient's condition became quite grave and various stimulants had no effect, the patient had several convulsions, the heart weakened very noticeably and the patient died. No autopsy.

Black Multiparæ.—There were two maternal deaths among the black multiparæ. The first patient, age 24, was seen by the out-patient service after a very profuse and sudden hemorrhage. A diagnosis of placenta praevia was made, the patient packed while in her home and sent to the hospital. For several days the packing was removed daily and the patient repacked when there was any hemorrhage. Ninety-six hours after admission to the hospital the patient had a chill with a sudden rise of temperature to 105.8 degrees. Thirty-six hours thereafter she was delivered by version and breech extraction of a still-born child. Four days after delivery the patient died. The autopsy findings were: Post-partum uterus; anemia; cloudy swelling of viscera; fatty liver; the heart's blood was sterile but the clot prevented sufficient blood being withdrawn for examination. Culture of the liver, kidneys and spleen showed a non-hemolytic streptococcus. Culture of the uterus showed colon bacillus.

The second death among the black multiparæ was a patient 31 years of age, with a funnel pelvis, transverse position of the fetus and placenta praevia, and had previously had a cesarean section. In view of the fact that the patient had marginal placenta previa, a very firm nulliparous outlet, a funnel pelvis, an old uterine scar, and since the uterus would

not respond to efforts at induction of labor, cesarean section was decided upon. The patient died a few days later and the autopsy showed fibrino-purulent peritonitis, acute enteritis, congestion of the viscera, fatty degeneration of the liver and fibrous pleurisy. The blood was sterile. The peritoneal fluid showed a non-hemolytic streptococcus and a diphtheroid bacillus. Among our 1000 mothers there were seven deaths, a mortality of .7 per cent.

In this connection we might mention that Barton Cooke Hirst speaks of three types of hospitals in his article on "Obstetric Deaths" (*Journal of the A. M. A.*, Oct. 29, 1921). The first admits only respectable married women of a fairly well-to-do class, does not have an ambulance service, and has a minimum of complicated cases. The second deliberately refuses difficult cases, has no provision for dealing with them, and actually transfers cases that become complicated in the hospital. The third makes a special bid for pathological conditions, has an active ambulance service, and is sort of clearing house for all the cases beyond the skill of the ordinary practitioner in a congested civic population. Our obstetrical service is used for teaching purposes and is conducted by the obstetrical department of the Washington University School of Medicine. Besides receiving patients from the city at large where the department maintains an out-patient obstetrical service, it receives complicated cases from the rural districts.

In our 1000 mothers the total death rate was 0.7 per cent. Two of the seven cases died of causes that were in no way related to the pregnancy. Plass of Johns Hopkins, in 1916, reported a series of 635 labors with the occiput posterior, and reported a maternal mortality of 1.57 per cent. Although this figure dealt with cases of occiput posterior, he maintains that none of the deaths can be attributed to the position, so that we feel the figure is a fair estimate of the maternal mortality in that clinic. Goldsborough has published the table of mortality of the first 5000 cases delivered at the Johns Hopkins Hospital, 2750 being attended as outdoor patients and 2250 in the hospital. The total mortality including all cases amounted to 55, a ratio of 1.1 per cent.

SUMMARY

(1) We feel that the methods for the conduct of labor as we use them can only be carried out by trained obstetricians in a maternity of moderate size; that they are not to be attempted in poorly appointed homes by anyone, or under any circumstances by the average general practitioner. These individuals do not do operative surgery under the

same conditions that they do their obstetrics, and the responsibility is as great in obstetrics as in operative surgery.

(2) The incidence of Cesarean section was 1.2 per cent., or twelve cases in 1,000, each case presenting a definite indication for the operation. In no instance was Cesarean section performed as a subterfuge to obtain a living child. We feel that the operation is being overdone in some clinics and that it is not fair to subject the mother to the dangers of subsequent labors with a pre-existing uterine scar.

We have used mid-forceps 24 times and high forceps 5 times. We have come to substitute the Potter version and extraction in cases where difficult forceps operations otherwise are indicated. Version is performed in certain of the cases of obliquely posterior position of the occiput where no progress is made after a fair test with complete cervical dilatation, where there is no definite disproportion between the head and the pelvis.

(3) Scopolamin or hyoscin-morphin seminarcosis has been used extensively in these cases, in 60 per cent. of all cases, or 75 per cent. of all primiparæ and 54 per cent. of the total number of multiparæ. Not all of the patients are suitable subjects for the application of the seminarcosis, but we feel that we can promise a successful result or a painless childbirth in 85 per cent. of the cases as compared with 80 per cent., the figures of Henry Schwarz in his report of the first thousand labors in Barnes Hospital. Our figures on fetal mortality show that the percentage is lower in cases where scopolamin-morphin seminarcosis was used than in cases without it, and it must be considered in this connection that the majority of primiparæ and difficult cases received the seminarcosis.

(4) The fetal mortality in our series of cases, basing the mortality on deaths in infants weighing over 2500 grams, was 2.16 per cent. compared to Williams' figures of 3.71 per cent. in a series of the first 10,000 cases in the obstetrical service of Johns Hopkins Hospital. The figures above are among mature children.

From these figures we feel quite definitely that the scopolamin-morphin seminarcosis is in no way increasing fetal mortality; in fact, the figures actually show a diminution and this must be considered quite remarkable when one is reminded that the hardest labors in most instances have been conducted under this method. This also is the experience of Opitz at Freiberg.

Our attention has not been called to any by-effects which this method might produce in later life. Such reports have not come to us from the pediatric clinic, nor from the phy-

sicians who are handling the majority of these babies in private practice.

600 S. Kingshighway.

SOME OBSERVATIONS ON SCARLET FEVER

H. B. NORTON, M.D.

CENTER, MO.

During the period from October, 1920, to May, 1922, I have had the opportunity of observing one hundred cases of scarlet fever, which have occurred in my town and community in a more or less epidemic form. The experience gained and conclusions reached from my dealings with these cases prompt me to submit this report. On the whole, it would be called a mild epidemic, the cases ranging from those that showed only a mild rash and slight fever to those that were so severe that recovery was doubtful. However, there were no fatalities. The patients ranged in age from 10 days to 58 years. Divided into age groups they are as follows:

Under 5 yrs.	5-10 yrs.	10-15 yrs.	15-20 yrs.	20-35 yrs.	Above 35 yrs.
20	39	24	9	6	3

Urine examinations showed albumin present in all cases, ranging from a slight trace to one-half of 1 per cent. Blood examinations were made only to determine the presence of leucocytosis, and an increase of leucocytes was found in all cases examined. No search was made for inclusion bodies. The rash was present in all but five cases.

Complications were as follows: Thirteen cases, all under 15 years of age, developed otitis media. Adenitis, varying in size from slightly palpable to so large that it was impossible for patient to rotate the head, was present in practically all cases, especially in the cervical and submaxillary groups. One case had diffused cellulitis of the tissues of the neck. Another case advanced to the point of suppuration. Where there was much involvement of the cervical glands the patient suffered considerable pain. One case developed bronchial pneumonia. Arthritis was present in eight cases, varying from slight stiffness to painful redness and swelling of the joints. One case, age six, developed a bradycardia and irregularity of the heart that is still present. Two cases developed an acute nephritis, showing hyaline, granular and blood casts in which the urine output dropped to as low as eight ounces in twenty-four hours.

The points that I wish to lay stress upon are:

First: That the period of infection of a case depends upon the condition of the patient's nose, throat, mouth and especially the condition of the cervical and submaxillary glands; if they are enlarged and tender, they are a greater source of infection than the stage of desquamation.

Second: That scarlet fever is not an air-borne disease; that is, in the same sense as measles.

Third: That it is possible to have scarlet fever and never show any rash and, due to this fact, a good number of cases are never recognized as such. This helps to explain why it is so hard to control an epidemic. These cases will generally go through a stage of desquamation, especially if there has been much fever.

Fourth: That it is possible to carry the scarlet fever contagion on hands and clothing from infected cases to healthy individuals, thereby producing the disease.

Fifth: That the laity should be instructed in the aim and purpose of quarantine regulations because it is next to impossible to keep a child out of school thirty-one days when it is apparently all right after the first three weeks. This is especially true in small towns and rural districts.

I will endeavor to show how the rise and fall in number of new cases corresponded to the release from quarantine of supposedly well cases and the subsequent quarantine of new cases.

Center Consolidated School District comprises an area of six square miles and has an enrollment of about three hundred pupils and it was principally through the medium of the school that the disease spread.

On December 28, 1920, Mr. D. C., wife and baby, visited the wife's folks here, consisting of a family of father, mother and four children, ages respectively, 58, 44, 18, 17, 12, 6. On January 1, 1921, I was called to see Mr. D. C., age 22, and found him with a temperature of 104, pulse 110, and complaining of dryness and pain in the throat; almost unable to swallow. On examination found a typical "strawberry" tongue, and a dry, red, congested throat with tonsils covered with a greyish-white exudate. On questioning him found that he lived in a neighboring city, occupying a double house and that the other occupant of the house had a child sick with something the doctor said resembled scarlet fever, and that he had been in the room with the sick child just two days before coming here. On the next day a faint rash appeared on his chest and in two days his entire body was covered. Family was quarantined and during the next ten days the

entire family developed scarlet fever. The father, mother and son, ages 58, 44, 18, failed to show any rash. I instructed them to watch closely and examined them myself every other day, but was never able to detect any rash. These three cases along with the rest of them all desquamated, especially the boy who ran a high temperature for several days. All convalesced nicely and desquamation was complete in three weeks. All were apparently well except the two younger children, who showed enlarged and tender cervical and submaxillary glands that continued so for another month. On February 2 family was instructed to take a good soap and water bath, also wash hair with an antiseptic solution, entire change of clothes, and spend the day in a summer kitchen in the yard while the house was being fumigated. Fumigation was done by myself with formaldehyde fumigators. All clothing, bedding and rugs were hung on lines and fumigation continued for eight hours. On returning family was instructed to wash all soiled clothing and all the woodwork with an antiseptic solution and to burn all papers and magazines.

The children returned to school on Monday, February 7, and on February 10 a case of scarlet fever developed in the primary room and on February 11 a case developed in Room No. 3. It will be observed that there was a pupil in each of these rooms from the family just released from quarantine.

The two new cases were promptly quarantined and the two children first mentioned were taken out of school again for ten days. The two new cases were mild in so far as the fever was concerned, and were released from quarantine on March 4. The one, a girl, age 8, returned to school on March 7, and the other, age 6, from the primary room, who had a marked cervical gland enlargement, was kept at home but allowed to play with two neighboring children, age 10 and 12, on March 4, 5 and 6. On the night of March 6 both these children developed scarlet fever. On March 10 a case developed in Room No. 4. This family was promptly quarantined and the entire family, consisting of father, mother and three children, had scarlet fever.

From now on until school closed May 10, 1921, there seemed to be a regularity between the development of new cases and the return to school of recent ones.

Quite frequently children would take sick at school with fever and vomiting but no cases would develop from this exposure which indicates that the danger of exposure is not so great during the first twenty-four hours.

During the recess between school terms, the school building was thoroughly fumigated, floors scrubbed, woodwork washed, sand tables

emptied; an attempt was made at fumigating the books, which I am inclined to think is impossible. During this period there developed only four cases, all in the same family, ages 4, 5, 12 and 15. The two smaller children took sick first, both at the same time, and the next two three days afterwards. We never could determine exactly where the first two were exposed, unless it was from a mouth-harp that they bought at a local store on August 1 which they blew constantly until they took sick on August 3. The school children often went into this store and blew these harps during the school year. These children were all ready for school September 6, 1921. During the period from September 10 to 20, two cases developed in the high school and three in the grades. From this time on until school closed on May 15, 1922, the same procedure as the year before was repeated. There would always be a crop of new cases following the return to school of well cases. There have been no new cases since school closed in May, 1922.

REPORT OF SOME CASES

CASE 1. W. B., age two years, lives ten miles in the country, spent the week of October 1 to 10, with grandparents in town. Third day here took sick with scarlet fever. It was a mild attack, except that he had marked cervical gland involvement which continued large and painful for six months. At the end of three weeks he was allowed to go to his home in the country. Thirty-one days after going home his mother took sick with scarlet fever and had a very severe attack. No one was allowed to visit this home after the baby went home and there were no more cases in this community.

CASE 2. F. E., wife and two children, ages respectively 33, 30, 8 and 4, all had scarlet fever; the little girl, age 8, taking it first. All had the typical rash except the father on whom I was never able to detect any rash. Father's mother, age 55, who helped nurse children during sickness, took sick with high fever, vomiting and painful sore throat, the most typical scarlet fever throat that I saw during the epidemic, and also one of the sickest cases that I had. She went to her home and was nursed by her daughter, age 30. I saw the patient every day for ten days and was never able to discover any rash. On the tenth day the daughter took sick with scarlet fever and had a typical rash. The mother went through a stage of desquamation.

CASE 3. On April 14, 1921, I delivered Mrs. R. C. of a girl baby; the baby and mother progressed nicely. On the tenth day the mother was up. At intervals the baby cried with colic. Mr. R. C.'s mother was released from quarantine on April 26, her daughter having had scarlet fever and she having helped take care of the baby. Three days from that date I was called to see the baby and found her with a temperature of 103, vomiting and body covered with a typical scarlet fever rash. This family lived four miles in the country and there had been absolutely no one in the room who had been near a scarlet fever patient except the grandmother and myself and I hadn't been there since the baby was two days old.

CASE 4. On January 6 a brother of the first family that had scarlet fever was in to see them. Three of them were sick at this visit. He lived six miles

in the country. On the eleventh I was called to see his two-year-old baby and found her sick with scarlet fever. I never could bring myself to believe other than that he carried the scarlet fever contagion to this child.

Treatment.—Fever was controlled with cold sponging in cases where it was high enough to demand it. Aconitine was used in a few cases. An antiseptic gargle was used in all cases that were able to gargle. Some iodine preparation was used in all cases which showed any glandular involvement and continued until glands were normal. There was such uniformly good results with these preparations that I came to look upon them almost as specific in this trouble.

As I reflect upon the results in our effort to control an epidemic of scarlet fever by quarantine regulations, I am forced to admit defeat and conclude that the control of scarlet fever will remain a puzzling question until some benefactor isolates the germ and perfects a vaccine that will rank in efficiency along with smallpox and typhoid vaccine.

ENDOCRINE BALANCE*

M. L. SANDS, M.D.

WARSAW, MO.

The human body is built up of about fifteen of the primary elements of nature. The most important of these are, in a man weighing 150 pounds, oxygen about 92½ pounds, hydrogen about 14½ pounds, carbon about 31½ pounds, nitrogen about 4½ pounds, phosphorus 1½ pounds, calcium nearly 3 pounds. The fifteen elements entering into the composition of the human body are combined into three classes of foods, fats, carbohydrates, protein, and in addition some of the mineral salts, by the chemico-vital processes of vegetable and animal life. Animal life cannot take its food directly from the primary elements of nature. Vegetable life must intervene and combine it into fats, carbohydrates and protein before animal life is possible. Man, being an omnivorous animal, takes his food from both the animal and vegetable kingdom. The cereals, fruits, nuts, vegetables, legumes, and tubers, furnish man with all the essential elements of nutriment, but especially fats and protein, in not so concentrated a form as does animal flesh or food. Fats and carbohydrates produce heat and energy. Protein some heat and energy but mostly and exclusively builds up body tissue. In order to build up and sustain the body the food substances must first be ingested, digested, absorbed and

*Read before the Pettis County Medical Society, Sedalia, September 18, 1922.

metabolized before nutrition of the body is possible. Normal nutrition depends upon normal metabolism. Normal metabolism depends upon endocrine balance. That is to say, normal metabolism is impossible without the action of the internal secretions to energize or influence metabolism in some way. Whether this influence is by catalysis or by chemical union is not clear. I am inclined to believe that its action is catalytic. In quite recent years a rather voluminous literature has sprung up on internal secretions. Indeed, so important has the investigation and discussion of this subject become that it has been dignified by special terminology—"endocrinology"—the science which treats of the internal secretions.

In the investigation and discussion of this subject the participants have become divided into two camps: The enthusiasts and the sceptics; the sceptics doubting and even denying much that the enthusiasts claim for endocrinology. It will be observed that the sceptics belong largely to the class of laboratory devotees, while the enthusiasts belong largely to the clinical group. I personally must confess a leaning to the enthusiasts. It seems that the laboratory devotee is prone to doubt and even deny everything which defies the search of the microscope and the analysis of the chemical and the crucible. While I would not detract one iota from the important part the laboratory has played in the advancement of medical science, it has its limitations. Its failure to demonstrate or analyze a known fact is not a final judgment against that fact, but only a failure or limitation. Why, the laboratory fails to prove that there are such diseases as scarlet fever and measles, though the clinician knows that they have killed people by the thousands for ages. So the recent epidemic of influenza; after diligent search with all the resources of the laboratory many eminent workers write "cause unknown." The laboratory devotee is prone to demand mathematical precision in order to establish belief or proof. The clinician is more didactic; that is, he spans some gaps by reason reinforced by sane induction. In the domain of investigation touching man's origin, place in nature and his final destiny, there are two schools of thought: the theists and atheists; or those who hold to the vitalistic doctrine and those who defend materialism. Between these two schools of thought the fight has been long and bitter. The battle ground has been the biological and the chemical laboratories, and the battle has been fought around the living cell. The cell is the physiological unit; the atom is the chemical unit. Chemistry can combine the atom into the molecule, the molecule into the compound and the compound into other compounds, but it has never been able to construct the living

cell and endow it with the spark of life. Back in the eighties Prof. Bastain, a noted sceptical investigator, announced that he had proven spontaneous generation. Prof. John Tindle, of London, who stood at the head of the sceptical and materialistic school of thinkers, himself a materialist, honestly seeking the truth, doubted Prof. Bastain's claim. He therefore used Bastain's method, but redoubled every precaution against error or fallacy, which was to take an infusion of hay, put it under a glass receiver and exclude every form of life, and then wait for life to appear or generate itself. None appeared. Prof. Tindle announced to the world that spontaneous generation was proven impossible—was only a phantom. A solar plexus blow to materialism. But this school of thought still doubts and denies. Though they admit the fact of the laws of nature, they seem to forget that there can be no law without a law-giver—an impossible proposition. They place themselves very much in the position of the old colored brother who upon a certain occasion was discoursing upon the origin of man, and said: "When de Lawd made de fust man he set him up agin de fence to dry." Whereupon, a colored brother back in the audience piped up: "Brudder Jones, who made dat fence?" The old brother, badly disconcerted, attempted to proceed thus: "When de Lawd made—When de Lawd made—put dat man out of de house; such questions will destroy all de theology in de wuld." Yes, brother materialist, "who made the fence?"—who made the laws of nature? Only one answer: a Supreme Power or Being, who made man a dual being with a soul and a body, united by the silver cord of life, which when broken in death, leaves the body to crumble back to the chemical elements of nature, perhaps to be used again to give face, form and feature to some other body in the distant future, while the soul goes marching on.

The most painstaking efforts, aided by all that science can give, only prove that all life must be preceded by antecedent life, and that the efforts to prove spontaneous generation as a fact is as a chase after the will-o'-the-wisp. The secret of the life principle is hidden away within the living cell and for centuries it has defied the search of the microscope and the analysis of the chemical and crucible, and today life awaits a definition. The biological and chemical laboratory has been the battle ground between faith and scepticism and the battle has been fought around the living cell. Chemical activity stops with the compound. The biochemical laboratory has labored long and hard to construct the living cell and so create life, only to prove, as before stated, that all life must be preceded

by antecedent life. The peculiar vital agent which hovers about the ameba and gives to it a nature which defies the search of the microscope and the analysis of the chemical and the crucible, is to the materialistic biologist an unknown god. But this aside. The maintenance of the health, the growth and life of the body depend upon the chemico-vital activities of the system. That is, the vital activities of the body depend upon the food taken into the system, which must be, as before said, ingested, digested, absorbed and assimilated. For instance, a man eats a meal; the protein of that food, by the process of metabolism or assimilation, is converted into muscle, bone, skin, hair, visceral organs, the eyes, blood and lymph vessels and brain tissue. That is, the protein molecule must be differentiated into the various tissues of the body through the process of metabolism. Metabolism seems to be activated to this peculiar differentiation by the various internal secretions. Lack of body development, muscle, brain, bone or visceral organs and so forth, is due to faulty metabolism. Faulty metabolism is due to discrimination or faulty endocrine action or to bacterial invasion. Metabolism is conversion of food substances into body tissue, heat and energy, and, when they have served their purpose in the body, their destruction, tearing down or further conversion into inert or poisonous substances fit for elimination. Therefore metabolism consists of two processes: anabolism, a building up or constructive or synthetic process, and catabolism, a tearing down or analytical process. The thyroid secretion has more to do with the normal growth and development of the body, physical and mental, than any of the other organs of internal secretion. As Sajous aptly puts it, "the keystone of the endocrine arch." For one to observe the typical adult cretin with his inhuman appearance, his almost total lack of intelligence, and I might say beastly aspect, is sufficient to convince one without argument of the importance of the thyroid secretion in the normal development of the body and mind, since cretinism is due to congenital absence of the thyroid secretion and begins in infancy. In fact, the thyroid secretion influences and in a measure controls the entire endocrine system. Myxedema is a condition due to lack of thyroid secretion from disease of the gland or its removal by surgical measures, and occurs in the adult. Both the above ailments are due to hypothyroidism. Exophthalmic goiter or Grave's disease is due to hyperthyroidism or excess of thyroid secretion, likewise due to disease of the gland. The hypophysis or pituitary gland, a small body consisting of two lobes, anterior and posterior, differing mark-

edly in function, both together weighing five to ten grains and situated in the deep recesses of the brain in the sella tursica, plays an important part in the normal development of the body. Endocrinologists claim that the anterior lobe is more a male gland, that it has more to do with the development of the male secondary sexual characteristics than does the posterior lobe, which latter is said to be more of a female gland, owing to the part it plays in the development of the female secondary sexual characteristics. Certain it is that when the anterior lobe hyperfunctionates in the female, she will show secondary male sexual characteristics. As the various organs and tissues of the body have different functions to perform, they must have a different histological structure, apparent macroscopically and microscopically. That is, their component cells must differ in structure and in the proportion of their chemical elements. For instance, brain tissue cells differ somewhat in chemical composition from muscle or bone tissue cells. The tissue of every organ of the body gets its building material in varying and proper proportions from several of the fifteen chemical elements which enter into the composition of the human body and which combine into protein and taken as food. It seems to be the peculiar function of the endocrines to exercise a selective action in the metabolism of the various tissues and organs of the body. For instance, the ovarian hormone or ovarian secretion gives face, form and feature to woman; gives the distinctive form of body and mind and the peculiar faculty of arriving at a conclusion, often intuitively, while man reaches the same goal only by laborious process of reasoning; the secretion of the ovary aided by the secretion from the posterior lobe of the pituitary body gives to woman her peculiar characteristics. Likewise, the secretion from the testes of man, aided by the secretion from the anterior lobe of the pituitary, gives to man his peculiar male characteristics. As our knowledge of the part that the internal secretions play in the normal development of the body and mind and the maintenance of a state of health increases, the more we are forced to the conclusion that much of the mental defects in children, the backward or retarded child, is due to lack of endocrine balance or dysfunction, hypofunction or perverted function. The investigations of the Russell Sage Foundation in thirty-one American cities, disclosed the fact that 20 per cent. or one-fifth of the children in the schools belonged to the retarded class or those mentally weak. The light shed upon the subject of the growth and development and health of the body and mind impresses me to believe that a large percentage of this mental deficiency is due to dis-

turbance or destruction of the endocrine balance. A normal, healthy mind depends upon a normal healthy brain. The integrity of the brain depends upon normal nutrition. Normal nutrition depends upon normal metabolism. Normal metabolism depends upon endocrine balance.

A peculiar result of a lack or perversion of the internal secretions in either sex, which determines the sex characteristics, when deficient, perverted or destroyed in the individual will give rise to sex characteristics of the opposite sex in that particular individual. For instance, note the female voice and mannerisms of the male castrate, early in life, and the bearded face and male mannerisms of the young female castrate; human I mean.

During the writer's college days a lecturer on gynecology made this statement: "Deity never went back upon himself but once; when he had all but finished his creative work he looked upon it and said it is good; but, as if stopping to reflect for a moment, he said it is not good for man to be alone. So, gentlemen, me made this pelvis with its surroundings (the lecturer having a female pelvis before him on the table) as a companion for man." What the creative mind really did was to give to woman her ovaries and the ovaries built the pelvis, and gave to woman her form, face and features.

The secretion of the testes, the cells of Leydig, not the semen, aided by the anterior pituitary, gives to man his peculiar male characteristics. The angular, wedge-shaped body, broadest at the shoulders and tapering like a wedge to the feet.

The full part which the endocrines play in normal mentality at the present time is not known. Pathology fails to discover any brain lesion in most cases of insanity, though logically we are forced to believe that in every case of insanity there must be a brain lesion, the discovery of which awaits ultramicroscopy. As before stated, normal brain function—normal mentality, depends upon the integrity of the brain, upon normal brain structure. This in turn depends upon adequate brain nutrition. Normal brain nutrition depends upon adequate nutrient, normally assimilated or metabolized. We often say that overwork and worry amounting to overstrain, the result of today's strenuous life with its unrequited aspirations and ambitions unfulfilled, is the cause of much of the present-day insanity. True, and this overwork and worry are the very causes which often upset the endocrine balance. It is conceivable that a better knowledge of the part the endocrines play in normal mentality will give us a better insight into the nature and the cause of insanity. Insanity like life is hard

to define because of its complexity and protean character.

To summarize: The thyroparathyroid, the pituitary and adrenals are considered the vital endocrines because extirpation of any one of these glands results in death. The thyroid has more to do with normal development and the maintenance of health, both physically and mentally, than any other one gland. Its hypofunction or absence of function in infancy or childhood is the cause of cretinism. Its destruction by disease or operation in the adult causes myxedema. Its hyperfunction or overactivity results in Grave's or Basedow's disease. This is the keystone endocrine, as in a measure it controls all the other internal secretions. The normal action of the hypophysis or pituitary is to promote skeletal growth and mental and genital development and metabolism. That is, the pituitary gland is composed of two lobes, posterior and anterior, having different functions. Giantism is often the result of hyperpituitarism or overaction of this gland. Dwarfism results from underaction of this gland. As the secretion of the posterior lobe is concerned largely with metabolism and especially the metabolism of sugar, hypopituitarism or underaction of this lobe in the child results in high sugar tolerance and the accumulation of fat over the entire body, as seen in many of the unusually fat children we often observe. In the adult the same hypofunction produces the condition known as dyslipohydriposo-genitalis. Hyperpituitarism in the child produces giantism; in the adult after the epiphyses have united with the shaft of the long bones and skeletal growth is completed, acromegaly results. Pituitrin is the product of the posterior lobe of the hypophysis. The adrenal secretion presides over the tonicity of the involuntary muscles. Hypoadrenia causes myasthenia, general weakness and lowered blood pressure.

The scope of this paper will not admit of going into the details of the other and minor endocrines.

In closing, I will say that the practical application of a knowledge of endocrinology is in the use of organotherapy or the use of the products of the glands of internal secretion in the treatment and relief of ailments due to deficiency or over-production of these glands, whereby we may restore endocrine balance, and so in part fulfill the mission of medicine: to relieve pain and suffering, restore health and prolong life.

HERNIA REDUCED "EN BLOC."—E. L. Eliason, Philadelphia (*Journal A. M. A.*, Dec. 24, 1921), reports a case of Richter's hernia of the ileum which was reduced *en bloc*. Repair was made by Bassini's method, and the patient's recovery was uneventful.

THE JOURNAL OF THE Missouri State Medical Association

JANUARY, 1923.

EDITORIALS

CHANGES IN THE BLIND PENSION ACT FOR MISSOURI

Two years ago an amendment to the state constitution was passed to grant a pension to the deserving blind of Missouri. In the following spring (that of 1921) the legislature stipulated that all those individuals twenty-one years of age or more, whose sight in either eye was no better than 20-450 without or with glasses, who had been residents of Missouri for ten years or who had lost their sight while living in this state and who did not possess an income greater than \$780.00 a year should be paid a pension of \$300.00 annually. The only exceptions mentioned were those under conviction of any criminal offense, those publicly soliciting alms and those confined in any insane asylum at the expense of the state or any county or municipality of the state. This was the sum of the provisions limiting the number to receive the pension. Many other points have naturally come up in the consideration of applicants for this pension and have been decided in various ways by different examiners.

The Missouri Commission for the Blind was wisely delegated by the legislature to oversee and regulate the working of this act. The commission and all those who have assisted in this work are firmly convinced that many changes and additions both in the medical and economic stipulations for the applicants must be made in the blind pension law if it is to work in a fair and equitable manner. As the General Assembly is to meet this month it is urgent that the eye specialists particularly, but of course all members of our profession interested in this law, at once consider thoughtfully what changes and additions of a medical character are best to be made, and to convey such opinions to the Missouri Commission for the Blind.

The consulting staff of eye specialists of the Missouri Commission for the Blind recently appointed a committee to consider the medical changes and their recommendations, taking up the various points as they occur in the law as already written, are, essentially, as follows:

Section 3. Medical examination of the applicant shall be made by an oculist only, ap-

proved by the commission, except in cases where both eyes have been taken out or have been totally destroyed, when an approved general physician may examine and testify as to the applicant's fitness for the pension.

In many counties general physicians have been examining applicants during the last eighteen months and many deserving blind would probably have been unjustly deprived of the pension had it not been for the generous co-operation of these general practitioners. Nevertheless, it can quickly be seen from reading the statements of the general physicians on the application papers as to the applicant's ocular condition, that these examinations cannot be very accurate and in many cases are of no value. How unsuitable to pass on these cases is one who, unable to use the ophthalmoscope, cannot tell whether the apparently partially sighted applicant is malingering; also whether lenses, operation or treatment would improve vision beyond the visual limit. To these statements the general physician would agree fully, for this work has been forced upon him because in many places there was no oculist to be obtained.

Oculist's fee shall be \$5 instead of \$2 as at present; this fee to be paid by the state when applicant is found eligible for the pension and to be paid by the applicant when not found eligible. The examination of the applicant's ocular condition is undoubtedly the most important part of the procedure to obtain the pension. In many cases it takes the most careful and expert examination coupled with an experienced judgment to arrive at the proper conclusions. Of course, in most cases, the diagnosis is simple to the experienced specialist but even then his conclusions should be accurate and definite. There has been no fee paid in much the greatest number of these examinations made up to the present time. Many of the specialists have not had the heart to charge a blind person for services and in other cases the blind have been resentfully indignant at being charged.

Section 3b. Only those individuals who are incapacitated by reason of blindness shall be considered eligible to receive the blind pension; provided, that where an individual has been put on the pension roll because of blindness he shall not be taken off later because of a subsequent disability.

More than half of those now on the pension roll are over sixty years of age and many of them are feeble, crippled, paralyzed or bedridden old people. If they had their sight they would still be completely incapacitated and though such individuals need more attention than those blind only, yet as this is a pension for the blind it should be confined to the blind. These are the cases in small villages

and on farms far from an oculist and very inaccessible, that made it necessary for the legislature to instruct the commission to appoint general physicians for examining applicants. Surely the county could afford to advance funds to permit the indigent blind applicant to travel to the nearest approved specialist.

Visual limit to be 20-1000 with or without appropriate correcting lenses instead of the present 20-450.

This change was considered advisable simply to limit still further the number of those on the pension roll, since vision of 20-1000 is very much less than that of 20-450. In fact vision of 20-200 is generally considered as making one unable to make his own living in an industrial capacity. We now have about 6,000 blind on the roll receiving pensions, which at \$300 each calls for an annual expenditure of \$1,800,000. The constitutional amendment passed provided to pay the blind pensions out of an annual levy of $\frac{1}{2}$ to 3 cents on the one hundred dollars valuation of the taxable property in the state. The legislature two years ago specified the rate of 2 cents on the hundred and at that percentage the average yearly income of 1921 and 1922 is estimated at about \$930,000; at 3 cents on the hundred about \$1,400,000 would be available, but that is the limit. Of course the 6,000 blind at present on the roll have been a gradual accumulation but it is clear that this number must be cut down.

An additional reason for lowering the present visual limit is the possible injustice of granting the same monetary compensation to those just within the 20-450 limit as to those totally blind. Regarding this matter the totally blind have not been loath to express themselves.

Any applicant whose visual fields extend on an average of 15 degrees or less from the point of fixation shall be considered as eligible to receive the pension. There can hardly be any difference of opinion regarding these cases, for it is a well-known fact that those whose visual fields are no greater than 15 degrees are almost as helpless as those totally blind.

In the case of applicants where the medical examiner shall think that there is a good chance by means of treatment or operation to improve vision to better than the visual limit, he shall so inform the applicant and certify to the same at the proper place on the application form. Such cases shall be re-examined at the end of three months and if these applicants have not by that time submitted to treatment or operation, their names shall be dropped from the pension roll. This would seem but fair, particularly in regard to cases where vision can be improved by treatment of the eyes. Also in those cases where there

are two eyes either of which is suitable for operation, there can be but little reasonable objection to operating on that eye which has the less vision. It must be conceded, however, that in those cases where there is but one seeing eye and that one offering a fair possibility of improvement by operation, there could be a reasonable objection to risking operation on an only eye with appreciable vision. The majority of members of the revision committee of specialists from the consulting staff of the commission felt that there should be no exception in these cases with one eye having appreciable vision. The prevalent opinion was that, in view of the fact that the applicant was asking for aid from the state, in every case he must submit to operation if that was indicated, or be denied the pension.

If changes are made by the next legislature in the requirements for applicants for the blind pension, a re-examination of many of those now on the pension roll will be necessary. This will not be necessary, however, in many cases examined by oculists, for on the first examination the exact ocular conditions were set down on the application papers. A committee of specialists reviewing the application papers at Jefferson City could pick out with a fair degree of accuracy which papers should be returned for possible revision after a re-examination.

TRAINING VETERANS TO BE CHIROPRACTORS

The United States Veterans' Bureau has not discontinued the practice of permitting veterans to enter chiropractic schools but a modification of the conditions on which trainees are entered for chiropractic training was announced last July. According to this modification no veteran will be allowed to train for chiropractic in states where the practice is illegal. He must establish, by affidavit or otherwise, that it is his purpose after completion of training to practice in a state where chiropractic is legal. The Bureau has established an educational requirement of high school graduation or its equivalent before a veteran will be permitted to enter a chiropractic school.

In the 9th District of which Mr. M. E. Head is district manager with headquarters at St. Louis, no man is placed in vocational training until he has been passed upon by a medical officer who either has examined the man personally or has a complete medical record at his disposal.

Doubtless these new rules result from the resolutions addressed to the Bureau and adopted by the American Medical Association at the St. Louis meeting, the resolutions hav-

ing been introduced at the request of the St. Louis Medical Society.

The Bureau of Legal Medicine and Legislation of the American Medical Association is still active in the effort to induce the Bureau to discontinue the practice of training veterans in chiropractic schools.

HYGEIA: A JOURNAL OF INDIVIDUAL AND COMMUNITY HEALTH

"For years the medical profession has felt the need for a periodical through which the public might be enlightened in matters of medical science. At the session of the House of Delegates in St. Louis, the sentiment crystallized and the Board of Trustees was authorized to proceed with this publication. As shown by the minutes of the last session of the board plans have now matured sufficiently to permit definite announcement. The April, 1923, issue—ready in March—of *Hygeia: A Journal of Individual and Community Health*, the first number of a scientific medical magazine for the public, will mark what, it is hoped, will prove to be another great step in the service which the American Medical Association is rendering to the medical profession and to the people of our country.

Aside from the utilitarian aspects of the title *Hygeia*—its brevity, ease of pronunciation, simplicity and attractiveness—it is symbolic of the very foundation of medical science and preventive medicine. The name signifies the purpose of the periodical: to interpret medical science to the public; to inform the layman concerning the fundamental facts of physiology and pathology; to keep him in touch with the advance that scientific medicine is making in the prevention and alleviation of disease. By its physical form, its attractiveness, its interest and its practical value, *Hygeia* should appeal to the lay reader as a publication worthy of his attention.

It is hardly necessary to tell physicians that there are many special problems confronting the editorial staff of the new publication. Every physician has been faced with the difficulty of placing a medical subject suitably before a lay audience. The speaker or writer has to put himself in the place of those whom he would enlighten; he must speak in the language of the masses; he must interpret technical terms in words of every-day usage. For the understanding of facts in relation to disease, for comprehension of immunologic reactions, for explanations of the way in which bacteria gain entrance into the body and produce infection, for knowledge of how various drugs produce effects within the body, certain fundamental knowledge is necessary. Unfor-

tunately, the vast majority of our public do not have it; they have no knowledge of the essentials of either the anatomy or the physiology of their own bodies. The problem, as has been said, is a difficult one, but it is hoped that, by leading from the elementary to the advanced, and by the use of chart, diagram, table and picture, *Hygeia* may be of service to every reader.

Everywhere, the Board of Trustees, the Council on Health and Public Instruction and the editorial staff have met a most enthusiastic response and are receiving offers of whole-hearted co-operation. Among the contributors whose articles will appear in early issues are scientists of note who can write in the language of the intelligent layman; moreover, many lay writers whose names are household words among the American reading public have agreed to give their assistance. It now remains for the medical profession to do its share in placing this journal in the hands of the public. On their co-operation will depend largely the success of the enterprise."

This will be a splendid magazine for our members to receive and place on the table in the reception room. It would also be to the advantage of the profession in every county if the physicians would bring it to the attention of their friends and patients, so they may subscribe for individual copies. County newspapers will, undoubtedly, be glad to have copies handed to them so they may quote articles bearing on public health questions, hygienic conditions and sanitation affecting the public.

Every County Society ought to be the leading factor in questions of this nature, and *Hygeia* will be an important means of establishing the County Medical Society as the proper authority for officials and citizens to consult in such matters.

NEWS NOTES

DR. EVARTS A. GRAHAM, St. Louis, has returned home after two months of travel in England and Scotland.

R. C. TRAVIS, a chiropractor of Bevier, Macon County, was arrested, and will be tried on a charge of practicing medicine without a license.

DR. C. E. BURFORD and Dr. H. H. Kramalowsky, who have been in partnership in St. Louis for several years, announce that the partnership has been dissolved.

DR. ELSWORTH S. SMITH, of St. Louis, gave a very interesting talk on "Quinidine in Auricular Fibrillation" before the members of Montgomery County Medical Society at their meeting held at Montgomery, December 12, 1922.

AT the meeting of the Southern Medical Association, held in Chattanooga, Tennessee, November 13-16, the medal for the best individual display of plaster casts, moving pictures and drawings of the results of plastic surgery was awarded to Dr. Vilray P. Blair, of St. Louis.

DR. A. H. HORN, formerly of Steelville, but for several years a member of the staff of the Michigan Home and Training School for Feeble-Minded, Lapeer, Mich., has been appointed assistant superintendent of State Hospital No. 1, Fulton, Mo.

DR. ARNOLD TRAUBITZ, of Vanduser, has completed three months' service at the Frisco Hospital in St. Louis, giving special attention to surgical work, and will spend several months at Chicago and Rochester, Minn., pursuing the same line of study.

DR. J. J. SINGER, of St. Louis, has been appointed consultant in diseases of the chest for the State Sanatorium at Mt. Vernon. The position is honorary, there being no monetary consideration offered Dr. Singer for his services. He will act in an advisory capacity, making frequent trips to the sanatorium with the view of assisting the staff to raise the standard of efficiency to its highest level.

THE National Tuberculosis Association, after careful study of all research work being carried on in that field of work, has assigned first rank to the investigations of Dr. Eugene L. Opie, Professor of Pathology in the School of Medicine of Washington University, and in recognition of his work has awarded a grant of \$3,000 for the twelve months beginning November 1, 1922, for the further prosecution of his researches.

DR. ERNEST SACHS, Washington University, and Dr. I. D. Kelley, Jr., also of Washington University, were guests of the Tenth Councilor District, including the counties of Randolph, Macon and Monroe, at the meeting held at Moberly, November 21, 1922. Dr. Sachs gave a very interesting talk on "Treatment and Results of Brain and Spinal Cord Lesions" and Dr. Kelley spoke on "The Solution of the Adenoid Problem."

DRS. A. R. McCOMAS, Sturgeon, President, Missouri State Medical Association, and Jabez N. Jackson, Kansas City, were guests of the St. Louis Medical Society at its meeting December 19, 1922. Dr. McComas gave a ten minute talk on "The Relations of the Missouri State Medical Association to Its Affiliated Societies" and Dr. Jackson spoke on the subject of "The Benefits Accruing from Medical Organizations to the Members, to the Profession and to the Public."

DR. H. M. HANSEN, of Copenhagen, was a visitor at the Washington University Medical School in December, inspecting the methods of X-ray research and physics. Dr. Hansen was commissioned by the University of Copenhagen to make a study of these subjects in America, his schedule including Harvard University, Chicago University, Johns Hopkins University, Princeton University, California University, the California Institute of Technology, and Washington University.

THE National Board of Medical examiners announces the following dates for its next examinations: Part I, February 12, 13 and 14, 1923. Part II, February 15 and 16, 1923. The fees for these examinations have been continued at the reduced rate for another year. Applications for these examinations must be forwarded not later than January 1, 1923. Application blanks and circulars of information may be obtained from the Secretary of the National Board, Dr. J. S. Rodman, Medical Arts Building, Philadelphia, Pa.

WE are informed that there are a number of vacancies in the medical corps of the United States Navy which it is desired shall be filled at the earliest possible moment. Physicians who can fulfill the requirements and particularly recent graduates of class "A" schools and those who are about to complete their internships, are invited to make application for a commission. Any medical officer of the Navy will be glad to explain the advantages of the service or full information may be obtained by addressing the Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

DR. DUNCAN D. CAMPBELL, of Chicago, has been appointed superintendent of State Hospital No. 2, St. Joseph. Dr. Campbell has been a member of the staff of the Chicago State Hospital for a number of years and during the war he served in the psychiatric section of the Medical Corps of the Army. He is a graduate of Loyola University School of

Medicine, 1917. This is the first time the board of control has appointed a non-resident to the important position of superintendent of a state hospital. Health Supervisor Ard recommended the appointment after having offered the position to several Missouri physicians who were capable and fulfilled the requirements of the law, but they declined the offer on account of the low salary or for other reasons.

THE following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies:

Lederle Antitoxin Laboratories: Mercurialized Serum-Lederle for intravenous use.

Charles Leich and Company: Sulfarsenol.

Mallinckrodt Chemical Works: Barium Sulphate Pure-M. C. W.

H. A. Metz Laboratories: Benzosol.

Parke, Davis and Company: Silvol.

Arsenobenzol-Dermatological Research Laboratories and Arsphenamine-Dermatological Research Laboratories: These products are now marketed by the Abbott Laboratories as Neoarsphenamine-D. R. L. and Arsphenamine-D. R. L. The Council has continued the acceptance for New and Nonofficial Remedies under these names.

THE question of whether advertisements of diagnostic laboratories should mention the prices of tests and the personnel of the laboratory was the subject of discussion at the meeting of the board of trustees of the American Medical Association last November, when the advertising committee of *The Journal of the American Medical Association*, through a communication to the board, proposed that the prices for tests and the personnel of the laboratories be published in the advertisements in *The Journal*. This was practically a request that the board rescind a former ruling which prohibited the publication of prices and personnel. The question is thoroughly discussed in the report of the proceedings of the board, which we publish on another page.* We invite the attention of our members to the report of the board's action.

THE secretaries of the state medical associations were called in annual conference by the American Medical Association at Chicago, November 17 and 18. It was an inspiring gathering and a program of considerable interest was earnestly discussed during the two-day session. The principal topic for the first day was the duties of the councilors of the state associations. There were thirty-six secretaries

at the meeting, Missouri's secretary being present, and in addition Dr. G. E. DeSchweinitz, president; Dr. Ray Lyman Wilbur, president-elect, and the members of the Board of Trustees of the American Medical Association were in attendance at the conference. The members of the Council on Health and Public Instruction were also present. The papers read before the conference and the discussion thereon will appear in the *American Medical Association Bulletin*.

AN act of the legislature of the state of Washington, passed in 1921, exempting children from physical examination in the public schools, was, under the referendum, rescinded at the polls, November 7. The objectionable statute, as it passed the legislature, was said to be the work of Christian Scientists. It provided that a parent or guardian having control or charge of any child enrolled in any public school in districts of the first class might file annually with the principal of the school a statement in writing refusing consent to the physical examination of such child, and that thereupon the child should be exempted from any physical examination unless a practicing physician or graduate nurse "in good faith" had reason to believe that the child was actually suffering from a contagious or infectious disease. Incorporated in the law, as it passed the legislature, was a proviso that no child should be required to submit to vaccination without the written consent of his parent or guardian, the law already providing that a child should not be required to be vaccinated against the will of his parent or guardian. The vaccination clause was calculated apparently merely to put on school authorities the duty of obtaining written consent in each case. The operation of the act was arrested under the referendum, through the activity of the public health forces of the state, which procured 70,000 signatures to petitions suspending its operation pending the referendum vote, although only 24,000 signatures were necessary. The people have now as a whole registered their votes in favor of the protection of health in the public schools through physical examinations of the pupils where deemed necessary.

—*J. A. M. A.*, Nov. 18, 1922.

THE semi-annual meeting of the American Society of Neurological Surgeons was held at St. Louis, December 15 and 16. The meetings were held in Dr. Sachs' clinic at Barnes Hospital and Washington University Medical School. The purpose of the Society is to advance the field of neurological surgery and it is composed of those men who are devoting their time exclusively or for the most part to

*See page 36.

neurological surgery. The membership numbers twenty-one, as follows: Drs. Alfred W. Adson, Rochester, Minnesota; Edward W. Archibald, Montreal, Quebec, Canada; Charles Bagler, Jr., Richmond, Virginia; Harvey Cushing, Boston, Massachusetts; Charles E. Dowman, Atlanta, Georgia; Charles A. Elsberg, New York City; Charles H. Frazier, Philadelphia, Pennsylvania; Samuel Clark Harvey, New Haven, Connecticut; George J. Heuer, Cincinnati, Ohio; Gilbert Horrax, Boston, Massachusetts; Harry H. Kerr, Washington, D. C.; William Jason Mixter, Boston, Massachusetts; Howard C. Naffziger, San Francisco, California; William O. Ott, Rochester, Minnesota; Max M. Peet, Ann Arbor, Michigan; Carl W. Rand, Los Angeles, California; Ernest Sachs, St. Louis, Missouri; Byron Stookey, New York City; Alfred S. Taylor, New York City; Edward B. Towne, San Francisco, California. The Society was founded in March, 1920, by Dr. Harvey Cushing, of Boston, and Dr. Ernest Sachs, of St. Louis. Dr. Cushing was the first president and Dr. Frazier is the president this year. Dr. Sachs has been secretary since the founding of the Society. The Society meets twice a year, each time at another man's clinic, with the idea of discussing problems of neurological surgery. There are no formal papers but each man at whose clinic the Society meets is to furnish the program. The next meeting of the Society is to be held in June in San Francisco at the clinic of Dr. Howard C. Naffziger.

At the Elks Club on the evening of Armistice Day the dinner of the Society was a complete success. The attendance was unusually large considering the many similar functions of the day. The prevailing opinion among those in attendance was that such opportunities for social contact among the members should be more frequent and that the Society should officially celebrate Armistice Day with a "Dutch Treat Get-Together Dinner."

There were several added features to those previously arranged by the Hospitality Committee. Among these was the introduction of a number of our members who are beyond seventy years of age. Among these were Doctors George Boemler, 81 years; Robert M. Funkhouser, 72 years; Robert J. O'Reilly, 77 years; Hugo Rothstein, 84 years; Frederick W. Wesseler, 81 years. Doctors Norman B. Carson, 78 years; Benjamin M. Hypes, 76 years, and William J. Langan, Sr., 72 years, were unable to come because of temporary indisposition. All the others mentioned were there and were formally presented by the President.

The war forces of the U. S. A. were repre-

sented by the following who were formally introduced: Major L. P. H. Bahrenburg, Surgeon, U. S. P. H. S.; Capt. Paul G. Capps, Medical Corps, U. S. A.; Lieut.-Commander W. E. Findeisen, U. S. Navy; Col. C. J. Manly, Medical Corps, U. S. A.; Major V. E. Miltenburger, Medical Corps, U. S. A.; Capt. H. M. Van Hook, Medical Corps, U. S. A.; Major P. W. Wipperman, Surgeon, U. S. P. H. S.

Another added feature was six three-minute talks to the question, "What the St. Louis Medical Society Means to Me?" Enthusiastic responses were made to this question by Doctors A. R. Kieffer, Hanau W. Loeb, Nathaniel Allison, Amand Ravold, John L. Tierney and John Zahorsky.

The members were thrilled with the subject, "The Spirit of St. Louis Medicine," as presented by Dr. Robert E. Schlueter.

"Some Memories of Armistice Day at the Front" were recalled in a happy manner by Dr. William E. Leighton, and Dr. Walter H. Fuchs demonstrated "Some of the Beautiful and Practical Features of Our Proposed New Home."

The address by Dr. John A. Witherspoon on "Ideals and Achievements of Medical Organization" will long be remembered by those present at the dinner.—*Bulletin St. Louis Medical Society.*

OBITUARY

HERMAN C. ROSS, M.D.

Dr. Herman C. Ross, a graduate of the St. Louis University School of Medicine, 1918, died November 5, 1922, from injuries sustained when an automobile in which he and three other physicians were riding, plunged down an embankment.

Dr. Ross was born June 11, 1888, at McArthur, Victoria, Australia. After several years of study in the Universities of Muenster, Kiel, Berlin and Munich he returned to St. Louis and was graduated from St. Louis University School of Medicine. He was an Instructor in Medicine at St. Louis University and a member of the staff of the City Hospital and the Jewish Hospital. He was a member of St. Louis Medical Society and his untimely death was a severe shock to the members of the profession. Dr. Ross is survived by his wife and three small children.

LEO CAPLAN, M.D.

A cable was recently received from Vienna announcing the death of Dr. Leo Caplan, a long and valued member of the St. Louis Medical Society. His death occurred on Novem-

ber 25th in Vienna from an inoperable enteric condition similar to that causing the death of at least four members of our Society in recent years. We extend to the bereaved relatives of Dr. Caplan the Society's sincere sympathy.—*Bulletin, St. Louis Medical Society.*

CORRESPONDENCE

REQUESTS REPORTS ON HUMAN ACTINOMYCOSIS

December 6, 1922.

To the Editor:

I am endeavoring to make a complete study of the distribution of human actinomycosis in this country. The number of cases reported in the literature is surprisingly small, and I know that the disease is not so rare as is sometimes thought. I shall greatly appreciate hearing directly from anyone who has had experience with this disease, and desire to know concerning case histories the following: Age, sex, occupation, residence, state in which the disease was contracted, location of lesion, duration of symptoms, and any special points of interest connected with the treatment, outcome of the disease, or necropsy findings.

A. H. SANFORD, M.D.,
Mayo Clinic, Rochester, Minn.

INFECTIOUS JAUNDICE

New Haven, Conn., Nov. 24, 1922.

To the Editor:

The undersigned is desirous of obtaining information regarding the prevalence of infectious jaundice in your state.

The disease is non-reportable and information regarding its prevalence cannot therefore be obtained from boards of health. I shall be grateful for any report of outbreaks which your readers may care to send me.

GEORGE BLUMER, M.D.
195 Church St.

REPRINTS ON GOITRE WANTED

Chicago, Ill., December 6, 1922.

To the Editor:

I am very much interested in the "Goitre" question.

I would appreciate it very much if you would send me reprints of any article that has ever appeared in your publication regarding any phase of the above subject.

In the event that you have no reprints on hand, would you be kind enough to pass my request on to the various authors or whoever you believe likely to have same.

J. B. JACK, M.D.
1858 S. Western Ave.

MISCELLANY

THE MENDEL-PASTEUR CENTENARY AT ST. LOUIS UNIVERSITY

A convocation commemorative of the centenary of the births of Mendel and Pasteur was held at St. Louis University on the evening of December 14, 1922, in the University Auditorium. Active participation in the ceremonies by the three universities of Missouri gave the occasion the importance of a state celebration. So obvious was the spirit of mutual understanding and appreciation that it was generally felt by all present that the realization of common interests had been materially advanced by this convocation. The response of the three medical faculties was particularly gratifying. A luncheon to which the visiting faculty members of Missouri University and of Washington University had been invited was held at the St. Louis Club at one o'clock.

The ceremonies in the evening opened with an academic procession, in which a delegation of the Medical School of Washington University participated. President Robison of St. Louis University presided. In his introductory remarks he bade the guests a hearty welcome and stressed the unifying influence of science. He then introduced Chancellor Hall of Washington University who pointed out in a brief carefully worded address the kinship of spirit that unites the research workers of the world, and thus happily struck the keynote of the evening's proceedings. For if there was one dominant note in the addresses it was this, that science must everywhere and unfalteringly pursue truth, and follow its call wherever it may lead. The same thought was voiced in the address of Professor Frederick M. Tisdel, Professor of English and Dean of the College of Arts and Sciences of the University of Missouri, the representative of President Jones. The latter was prevented from being present by his recent illness. Then followed the main addresses of the evening, "Mendel, the Scientist," by Professor H. S. Jennings, Henry Walters, Professor of Zoology and the Director of the Biological Laboratories at Johns Hopkins University; "Pasteur, the Scientist," by Professor Victor C. Vaughan, Dean Emeritus of the Medical School of the University of Michigan and now Chairman of the Division of Medical Sciences of the National Research Council, and "Science and the Man," by President Robison.

Professor Jennings' Address

Professor Jennings was a particularly happy choice for the address on Mendel. Aside from the lectures on heredity and evolution which he has given for the past ten or more years at Johns Hopkins, he has made numerous contributions to genetic science, particularly on the bearing of Professor Morgan's epoch-making researches. In addition, Professor Jennings is an acknowledged leader in the field of protozoan heredity and his recent work, "Life and Death, Heredity and Evolution in the Protozoa," promises to be no less a classic in this particular field than was his previous work, "The Behavior of

Lower Organisms," in the field of animal behavior. His forthcoming book, "Pure Line Inheritance," is already announced and bids fair to be an equally important production.

Mendel and Heredity

Dr. Jennings began his address by reflections on the meaning of heredity and the profundity of the problems involved. He pointed out that up to 1900 the question was considered unanswered. And yet, while speculations were numerous enough, the solution already lay buried for more than thirty years in the obscure proceedings of the Brunn Academy of Sciences, to which Mendel had reported his discoveries. "For thirty years he was the only man with a scientific understanding of heredity and of variation, and he died the only one." Dr. Jennings then commented on the apathy of those who should have been the first to recognize the fundamental importance of Mendel's work: "The paper on peas," he said, "contained the solution of the problem of heredity. It fell dead from the press. No one noticed it. Mendel sent a copy of it to the man who among the professionals he felt most likely to appreciate it—to Carl Nageli, professor of botany at Munich, and later author of a famous work on heredity and evolution . . . What did the great professor and man of science think of these (letters)? We have not his answers to Mendel's letters but from certain notes which he made on them, it appears that he was at least mildly interested, but mainly on the work on the hawkweeds—which did not contain the key to the problem of heredity. What he thought of the other work, with its mathematical formulae, its constant proportions, its concept of dominance and segregation, and other things foreign to the then orthodox thought of science, we can only conjecture. . . . And so the great Nageli appears likely to live in the history of science as the man who turned Mendel down, and Mendel's work was lost for thirty years." Professor Jennings finds some little excuse for Nageli. "Every man of science is pestered by cranks. One can't spend one's time with even honest and well-intentioned cranks, and certainly, it seemed, no man with so little training and experience as Mendel was going to solve that great problem." But, on the other hand, Mendel's reaction to Nageli's indifference was marked. "As Nageli gave up Mendel as hopeless, so also seemingly did Mendel give up the professional biologists as hopeless. He made no further attempt to interest them in his work; he published no more of the results of his really vast researches, although he continued the work itself, for he was interested in reality for its own sake. And there must have been something splendid about the consciousness that he was the only human being that had a scientific grasp of heredity. It would have been most interesting if we could have Mendel's reflections and comments on the blindness of the professionals. What an opportunity for the scorn and invective of a Schopenhauer or the gibes of a Bernard Shaw, on that favorite topic of theirs. The ineptitude of the professionals! But Mendel, if he had any such thoughts, did not put them on record; he was not that type of a man." And this was but the outcome of the man's character, of the man who to all his work "brought the light of a clear, systematic, unpretentious, unspoiled intelligence; a straightforward, tenacious common sense, perhaps the highest of scientific gifts."

Mendelism

Professor Jennings then discussed the broad results of Mendel's researches. "Mendel discovered that, when one takes a view that is both long measured in generations, and wide in its extension, any

group of living beings is a network of interweaving strands, the knots in the network being what we call individuals. Each individual consists of a great number of separable parts, which are the strands of the net. In the process of generation the knots are untied, the strands part company, diverge, and become united anew with other strands from other individuals; a new knot is formed; a new combination of strands—a new individual. And these strands are what, under given conditions of the environments, give to the organism its characteristics. The constituting strands of any individual have existed in many others, and will exist in still others—but always in a new combination. Generation, heredity, in all higher organisms is a process of continually dissolving old combinations, and of forming new ones, but from the same continuously living constituents. The processes of dissolution and recombination take place in accordance with certain mathematical rules—the rules of permutations and combinations, acting under certain special conditions.

"Mathematics takes its place in biology, as in physics; takes its place in the very fundamentals of biology; biology becomes mathematical. Heredity takes its place as the working out of these mathematically determined recombinations; its rules are mathematical formulas. And not heredity alone, but variation falls into the scheme. Mendel's work is fully as much a discovery of the ground and nature of diversities as it is of similarities. Ninety-nine per cent. of what had been called variation, that was still called variations for forty years, is likewise the working out of these combinations. This is the fact that was hardest to digest in Mendelism; this it is that led to furious resistance, to violent controversies on the part of those who saw it cut the foundation from under their theories of variation and evolution; this is the part of Mendelism whose bearings are even not yet fully assimilated, not yet entirely clear in their implications."

Mendelism and Darwinism

And finally in a passage of his address that deserves to live, and that is as condensed in its thought as it is significant for modern students of heredity, Professor Jennings touched upon the relations of Darwinism to Mendelism.

"A final word as to the relation of Mendelism to Darwinism and to the theory of organic evolution. Mendel did not, so far as I know, express himself as to the bearings of his discoveries on theories of evolution or on other philosophical doctrines. But he is credited with a shrewd remark, after observing for long periods the growth side by side of closely related varieties without any changes in their genetic constitution, to the effect that it was clear that evolution was not getting ahead that way.

"In truth, by showing that 99 per cent. or more of the variations that Darwinism had relied upon as a basis for evolutionary change are not such, but are recombinations of enduring geneses, Mendelism produced a tremendous breach in the structure of Darwinism; at times it seemed to have brought the entire edifice quite to the ground. This it is that has given a real opening to the anti-Darwinian, the anti-evolutionary agitation of the present time. Certainly it has left the problem of evolution and its method in a far different position from that which it occupied before; a position which, superficially at least, is much weaker, a defensive rather than an aggressive position.

"This is a fact seemingly not fully realized by some enthusiastic partisans of Darwinism, with the result that opponents more abreast of the times take them at a disadvantage. But in doing away with false knowledge, Mendelism made possible the accumulation of true knowledge. Actual changes in

genetic constitution, such as the theory of organic evolution postulates, became for the first time recognizable, and they are coming slowly to light. If the theory of organic evolution becomes demonstrable by verification, it will be on the basis of Mendelism. Darwinism will go down in the history of scientific thought as an illuminating interpretation, seemingly correct in its grand conclusion, of a mass of data that was unsifted, unscientific and largely misunderstood. Mendelism is the slow scientific ordering of this mass of data, with resulting discovery of its meaning. However it may be with the philosophical theory of evolution, the genetic science of the future will be based, not on Darwinism, but on Mendelism."

Professor Vaughan's Address

If Professor Jennings' address was academic and profound, that of Professor Vaughan on the work of Pasteur was no less excellent in its geniality and popular appeal. Professor Vaughan needs no introduction to the readers of THE JOURNAL, and all who know him will acknowledge that no more able exponent of Pasteur's work and ideals could have easily been found. For more than an hour Professor Vaughan held his hearers by one of those talks that have made him so desirable a speaker on countless scientific occasions. In speaking of the early life of Pasteur, Professor Vaughan enlivened his narration with many a delicate touch of humor, to which his audience responded with no little appreciation. He outlined Pasteur's chemical work, showed how it gradually led him into his studies on fermentation, from these to his studies on bacteria, and then to that of pathogenic organism, and finally to his discoveries in the field of preventive medicine and immunology.

Vivisection and Public Health

All through his address he made points that were peculiarly adapted to our anti-vivisection battle in Missouri, and showed how animal experimentation made possible the tremendous results of Pasteur's researches for the betterment not only of mankind, but also of animal races. "If fowls could speak they would celebrate the fact that the experiments of Pasteur saved them from chicken cholera, and if sheep and cattle could speak they would pay tribute to Pasteur because his experiments have saved them from anthrax." Professor Vaughan cannot talk for long before finding his line of thought leading him into the main line of his own endeavor, public health. On an occasion such as this was, one would be unwilling to dispense with his flashes of inspiration on the subject in which he is such a master. And so towards the end of his address he made a plea for the recognition of the importance of his own science. He showed that the change in the death rate since the days of Pasteur, from 30 to 40 persons out of every thousand to 13 out of every thousand, was directly traceable to the pathogenic theory of disease formulated and substantiated by Pasteur, and explained how this fact was correlated with the lengthening of the average life from 30 years in Pasteur's time to more than 50 years in modern America. His word of warning should not go unheeded: "Today false teachers are urging the multitude to descend to the valley whence they came, and as a scientist I fear that the near future of the race is by no means certain. The greatest homage we can bestow on Louis Pasteur is to follow his teachings." Professor Vaughan closed his address with a strong appeal for international co-operation in hygienic problems.

President Robison's Address

In his closing address President Robison singled out the qualities that make for true greatness in the

man of science, and illustrated his remarks by reference to the lives of the men who were being commemorated. Modesty, humility, sincerity, are the moral qualities that must underlie every great achievement in the field of science no less than in any other. "These two men knew that theirs was but a small portion of the sum of knowledge; yet, in their honest and modest and fearless quest for truth they went on quietly and bravely, giving a benison to the whole world and increasing the holdings of humanity. Truth beckoned them onward, and these hardy pioneers of truth pressed onward after the flaming beacon."

"Not from the lips of men like these were complaints poured forth against 'intrusions upon the freedom of science' or against the contradiction between science and revelation of religion." Freedom of science? They knew that science has precisely the same freedom as that which is the sacred birthright of the human mind—that and no more. For both, truth is the object of the quest and must be the norm of activity. Truth, and truth alone, places its behests upon man in his mental efforts; and does it, not to hamper him, but to aid him. When the clear light of truth sheds its radiant clearness over the object of honest quest, it is as senseless to talk about the mind of man being utterly free to embrace that truth or to reject it, as it would be to say that a man is quite at liberty to deny the findings of the multiplication table or to doubt the effects of the force of gravitation."

Commenting editorially on the celebration, the St. Louis *Globe-Democrat* aptly grasped the significance of the occasion. "Such gatherings of scientists as that of St. Louis University which paid centenary honors to Mendel and to Pasteur, also born in 1822, are gatherings St. Louis delights in. They have a tonic influence that extends widely and lasts long."

ACTION OF THE BOARD OF TRUSTEES OF THE AMERICAN MEDICAL ASSOCIATION ON ADVERTISEMENTS OF COMMERCIAL LABORATORIES

The fall meeting of the board of trustees of the American Medical Association was held at Chicago, November 16, and considerable business transacted holding interest for every member. The full proceedings of the board are published in *The Journal of the American Medical Association*, December 2, 1922, but we quote that part of the proceedings relating to advertisements of commercial laboratories because it holds an interest for every member and for the reason also that some of our members are not subscribers to *The Journal of the American Medical Association*. The action of the board follows:

"At a former meeting of the Board, a resolution was adopted directing the advertising department of *The Journal* not to accept advertisements of commercial laboratories in which the personnel, including consultants, and the prices of the various tests are mentioned. Following this action of the Board, the Advisory Advertising Committee at headquarters, which consists of six members and which meets every Thursday morning to consider applications for advertising in *The Journal*, held several conferences to consider the principles which should govern the acceptance of advertising of clinical pathologic laboratories. At the September meeting of the Executive Committee of the Board, the Advisory Advertising Committee presented the following report:

To the Board of Trustees:

Recommendations have been made to the Advertising Committee that in advertising commercial laboratories in *The Journal*, the names of the personnel, their qualifications for rendering service and the

price to be charged for such tests should be omitted. Believing that such action was not in the interest either of the physician or of the public, the Advertising Committee submits the following brief:

Omission of Price.—The omission of price permits the man who calls himself a laboratory specialist to make charges for laboratory tests on a sliding scale. Such variations in price are not warranted by the character of the work done. It permits the laboratory man to be a superspecialist of the type which is being opposed in other branches of the profession. The status of the clinical pathologist is not the same as that of the internist or surgeon. The latter deals with variables—human beings. The former conducts manipulations on fixtures—inanimate substances. If the tests are scientifically performed, the results must be the same in the hands of all well-qualified men. Personality does not enter in; training does. It is known that when the prices are not generally known, some laboratories charge physicians unwarranted fees for services. At the same time, when prices are not made public, an unscrupulous physician may charge patients unwarranted prices for laboratory work. Such work as the Wassermann test, urinalyses, blood counts and similar technical procedures are standard commodities which can be furnished by persons of a certain minimum training at a reasonably fixed price which may be estimated and controlled through the advertising committee of *The Journal*.

Personnel.—The personnel is a variable factor in laboratory service. If, then, prices are to be made public, as we believe they should be, it naturally follows that, rather than omitting the names of the personnel, their inclusion in the advertisements should be encouraged. At least, the Advertising Committee must have the names in order to ascertain the training and competence of those doing the tests, and thus to judge whether or not the advertising is acceptable. In the interest of physician and public alike, it is desirable to make public both personnel and fees, and thus stimulate competition on the basis of the qualifications of those doing the work. The interests of the public are served by competition, provided that advertised claims are verified and honesty established; they are not served by the secrecy that would inevitably follow if advertising of laboratory service were limited merely to the names of individual clinical pathologists.

Consultants.—Only a few commercial laboratories now advertise a consulting staff. As far back as 1905, there appeared in *The Journal* laboratory advertisements with the names of the consulting staffs, so that precedent is available. Needless to state, a consulting staff which renders actual service to the laboratory in advising regarding methods and in standardizing the work increases the value of the service. It remains for *The Journal*, through its Advertising Committee and its Bureau of Investigation, to ascertain whether the consulting staff actually functions. Those laboratories which list names of "consultants" who lend only their names for purpose of advertising will not be permitted to advertise in *The Journal*. But a consulting staff which actually works may well be a worth while feature and should be encouraged.

It is to be especially emphasized that the advertising of commercial laboratories in *The Journal* is not addressed to the public but to the medical profession. Commercial laboratories whose advertisements are acceptable to *The Journal* do not perform services for the public except through the physician, and report only to the physician who sends the patient. Laboratories advertising in *The Journal* are asked to submit the name of the director, who must be a physician. They are also requested to submit statements of fees charged for routine tests.

In conclusion, the committee believes that the best interests of the medical profession and the public might be served through establishing a committee of the Association which would investigate and standardize laboratory service and check the claims made for various commercial institutions.

The Executive Committee received this report and recommended that it be presented to the full Board at this meeting.

The subject of the character of the advertisements carried in *The Journal*, and especially of commercial laboratories, aroused general discussion by all of the members of the Board, by the President, the President-Elect, the General Manager, and by some members of the Advisory Advertising Committee who were invited to the conference. Finally, by resolution, the Board rescinded its former action and adopted the principles contained in the report of the Advertising Committee. In this connection the Executive Committee of the Board was directed to give close scrutiny to advertisements appearing in *The Journal*, and it was recommended that the Committee on Advertising endeavor to have the commercial laboratories make the circulars sent through the mails to the medical profession correspond in principle with the advertisements placed."

GIVING EYES TO THE GOVERNMENT

Written at the request of the President of the St. Louis Medical Society

Up to a very recent period our Army Medical Museum, 7th and B Streets, S. W., Washington, D. C., although rich in specimens illustrative of other branches of surgery, had but few items of value to ophthalmologists.

My interest in this matter dates from a conversation with Dr. G. E. de Schweinitz at Washington, in April, during the session of an International Congress of Ophthalmology, in which the resting place for my collection was discussed. He advised that it be given to the Army Medical Museum, and kindly offered to mention the subject to the curator, Major Callender.

A few weeks later the curator wrote, asking if the collection could be secured, and if so, on what terms? My answer was: "Always keep this collection intact as a separate unit; care for it, and let it bear my name." This was satisfactory, and in a letter dated July 4, 1922, my Ophthalmic Museum was formally donated. Thus the ophthalmic treasures assembled during a period of thirty years now rest under the aegis of the government.

Plan.—The present plan is to have the following divisions:

1. Pictorial Items.
2. Gross Dissections and Gross Pathology.
3. Microscopic Items.
4. Ophthalmic Armamentarium.
5. Rare Ophthalmic Literature.

Status.—Up to date only Division I has been installed. It comprises original paintings of normal and diseased fundi, made by the late Miss Margaretta Washington; original drawings of external ocular diseases, by Miss Washington and by other artists; photographs and photomicrographs; early colored plates of external eye diseases (e. g., Von Ammon's "*Klinische Darstellungen*," Berlin, 1838); early ophthalmoscopic plates (Stellwag, Zander, Leibreich); Pagenstecher & Genth's *Atlas of Ocular Pathology*; Oeller's *Atlas of Rare Ophthalmoscopic Conditions*; plates showing operative procedures (Saunders, 1813; Guthrie, 1830; Ritterich, etc.), and numerous portraits and biographic sketches of the dead masters of ophthalmology. In all, Division I will embrace 1,000 items, of which 800 have been

delivered. These are housed in a room on the first floor of the Army Medical Museum and are available for study.

Division II.—This is in the making and the specimens will be set up as rapidly as the shorthandedness of the institution will permit. Recently two bags filled with dissections and enucleated eyes were carried to Washington and delivered. Other like items are being forwarded from time to time. Probably this part of the collection will be available for use early in 1923.

Other Divisions.—These will be thrown open at a later date, probably not until 1924.

It is with a deep sense of gratitude that mention is here made of the manner in which the authorities at Washington have received the plan. Every courtesy and facility has been extended to the writer, and room has been made for this collection where apparently there was none. The pictures all have been passe-partouted, "the better to preserve them from the ravages of dust and time."

Growth.—Judging by the enthusiasm with which this project has been greeted, it is evident that this Ophthalmic Museum should soon become one of the largest and most useful in the world. Among the gentlemen who are ready to contribute items to it are the following:

Mr. E. Treacher Collins, London, formerly curator of Moorfields Hospital (the largest of eye hospitals);

Mr. J. Gray Clegg, Surgeon to the Royal Eye Hospital, Manchester, England;

Professor S. E. Whitnall, of McGill University, Montreal;

Professor Herbert Evans, of the University of California;

Professor R. J. Terry, of Washington University, St. Louis;

Dr. L. Webster Fox, Professor of Ophthalmology in the Post-Graduate Medical School of the University of Pennsylvania;

Drs. William T. Shoemaker and William Zentmayer, Professors of Ophthalmology in the Post-Graduate Medical School of the University of Pennsylvania.

Dr. S. Lewis Ziegler, formerly Surgeon to Wills Hospital, Philadelphia; and

Dr. George E. de Schweinitz, President of the American Medical Association, Professor of Ophthalmology in the University of Pennsylvania.

It is a pleasure to the writer to be able to give to the Government something it did not possess; something it needed, and something that money could not buy.

(Signed) JAMES MOORES BALL.

St. Louis, December 12, 1922.

—From *Bulletin* of St. Louis Medical Society.

REPORT OF THE MEDICAL PROGRESS COMMITTEE OF THE ST. LOUIS MEDICAL SOCIETY

To the President and Members of the St. Louis Medical Society, Gentlemen:

Your Committee on Medical Progress, to whom on June 6 was referred the matter of making a survey relative to the conditions under which members of the medical profession are working in municipal service and in public institutions, and to investigate into the matter of salaries paid as remuneration for these services, beg leave to report as follows:

In making this medical survey, members of your committee have gone into the various institutions and obtained much of this information from the superintendents and physicians in charge and other sources that were of benefit.

City Sanitarium

In reference to our City Sanitarium we recommend that the full quota of doctors allowed by the charter and ordinances of the city be filled, and the pay increased to a point to make these positions attractive. Unless this is done we shall lose those we have. Thirty-five additional attendants are absolutely indispensable and a training school should be established as soon as these attendants can be secured. There should be extensive outside supervision to paroled cases and all cases entitled should have a thorough investigation. To do this work, which would enable us to keep more patients in their homes, we should have at once not less than three trained psychiatric social workers.

Plans are under way to build quarters for the T. B. insane now in a detached building. When this building is completed and the old quarters taken over for a receiving hospital, hydro-therapeutic equipment should be installed in E and J wards of the main sanitarium. Together with the extension of hydro-therapeutics there should be an extension of occupational therapy with the attention to necessary attendants. Adequate plumbing, reasonable toilet and bath facilities should be added as soon as possible in the main building as these facilities are now wholly inadequate. Separate quarters, apart from the sanitarium building, should be provided for the employees. This would relieve the crowding and make room for the more adequate care of patients.

No addition should be made to the size of the present sanitarium. We should buy land and start another hospital in the country. The present sanitarium should be reserved for the physically and mentally incapacitated patients, and new provisions should be made for all cases capable of being helped by outdoor life.

City Hospital No. 1

In this institution are housed 472 doctors, nurses and help, in very crowded quarters and in many instances with lack of sufficient furniture for ordinary comfort. We urge this to be remedied.

The manager is required to remain on duty 24 hours every day. An assistant manager should be appointed by the Hospital Commissioner to render this individual relief.

A resident dentist is very necessary. The City Hospital has a dental chair with full equipment but no one to use it. In this institution where more than 17,000 patients enter annually a resident dentist will be a great help in treating many cases.

The department of bacteriology and pathology is not well located at the present time, and we recommend that it be removed from the basement floor to the main building in a place nearer divisions eighteen and twenty. An assistant for blood chemistry and clinical laboratory work should be added to this staff.

The morgue and animal room likewise need rearranging as no sunlight whatever strikes the animal room, and the taking care of dead bodies is inadequate. There is also no place to keep the clothing and valuables.

The X-ray department which does splendid work in this institution is badly located and is inadequate in size. We recommend that it be transferred to the emergency building which was recently vacated at the completion of the new clinic building. Two more technicians and another full time stenographer and also one regular dark room man are much needed in this department.

Social service in this institution cannot be measured in dollars and cents and fills many a gap. Four helpers are now employed, one giving her full time to the City Dispensary. Religious organizations are

not paid by the city but are affiliated in the work. These workers usually get consent for operations, investigate all maternity cases, as well as all cases of children under 14 years of age, and make their report once in 24 hours.

By reason of the fact that the automobile is increasing the number of accidents and results of these accidents require emergency treatment most all of them find their way into our City Hospital. Many of these remain for treatment from two to eight weeks averaging about four weeks' stay. Many of these cases are covered and protected by liability insurance policy by the owners of automobiles as well as the owners of industrial plants. Inasmuch as it costs the city \$2.85 per capita per day to treat and care for these patients the privileges are taken advantage of by both industrial institutions and individuals at the city's expense which is the means of crowding out the indigent poor for whom this service was intended. It is recommended that the city's fiscal authorities consider ways and means of collecting from insurance companies, motorists, or industries, a remuneration for taking care of cases where insurance is carried or when either party to the accident is financially able to contribute to the cost of maintaining this patient.

Part Pay Hospitals

The overcrowding of private hospitals creates a high cost of hospitalization to the individual and sets up a need for a part-pay hospital in our city where chronically ill patients can be taken care of at the nominal cost to the individual or his or her dependent ones and who are oftentimes anxious to help contribute some for their care.

The same arrangement by which patients or relatives contribute to the upkeep, say \$20 per month or more, as it now pertains to many patients at our sanitarium should be arranged for at the City Hospital, thereby reducing the cost of per capita upkeep and to help solve the problem of care for worthy cases in need of medical care and hospitalization.

Two investigators at \$125 per month should be employed by the city to select suitable cases for admission to the hospital and to collect from those who are financially able to contribute to the upkeep of our institution.

Check up all emergency cases (medical and surgical) and collect from those who are financially able to contribute to their upkeep in our City Hospital, thereby reducing the cost per capita and make room for the needy poor and suffering inhabitants of our city.

Robert Koch Hospital

This institution has no working staff and we urge an organization consisting of an orthopedic surgeon, pathologist, bacteriologist, dentist, and eye, ear, nose and throat consultants. Here the employees are also in very crowded quarters and the nurses and physicians are not properly housed. Some means of getting to and from the hospital for all those employed should be provided. There is no means of recreation; this should be changed without delay. The building now in construction will relieve some of the congestion as far as patients are concerned, but will in no way take care of the above-mentioned points. Plans for the building are being formulated along the lines of the advice received from the National Tuberculosis Association.

City Hospital No. 2

The present No. 2 Hospital is a temporary makeshift that never should have been created. What is needed is a new modern institution for the care and treatment of negro patients. This new institution should have at least four hundred beds to start out

with and should have ultimate capacity when all additions are added thereto, of at least eight hundred beds. It should be on a large tract of ground and in a district convenient to the large centers of the colored population. There should be an out clinic in connection with this institution. We have noted carefully the fact that while the colored population of this city only represents approximately ten per cent. of our population at this time, various forms of disease are more prevalent among this race than among the white and further, that the majority of this race live in congested districts and under more unfavorable sanitary conditions. We also recognize the fact that there are but few private institutions that are equipped to render medical service to colored patients. The present situation at No. 2 Hospital should be corrected at the earliest possible moment.

Health Division—Baby Clinics and Dispensary Service

These sections of the city service are attempting to meet a very large problem in the prevention of disease. They are taking care of, in the baby clinics, the problem of child health, advising with mothers and examining babies and have done much toward reducing the number of cases of children who were sent to the city institutions for care and treatment. We have seen one physician in one of these baby welfare clinics endeavoring to handle between eighty and ninety cases, make examinations, consult with and advise mothers who have come to these clinics and do all of this within the two-hour time for which he is engaged by the city. We were very much impressed with the work that is being done by the health division in its work in supervising campaigns for the preservation of public health. We are pleased to note that St. Louis has the lowest infant death mortality of any similar city in the world. We have observed with interest, the work of the communicable disease section in investigating all reports concerning communicable diseases. There should be in this section at all times, a sufficient number of highly trained medical men, paid an adequate salary to handle this most important work. In case of an epidemic breaking out in any locality, it is up to these men who are trained and who specialize in this work, to handle this problem in connection with the medical men of our city.

Our investigation shows there are men in this section who have devoted their lives to this work but whose efforts have not been recognized in the matter of adequate compensation. There are diagnosticians who have been in this service eight, nine and ten years, serving eight hours a day and receiving as compensation, the princely sum of \$145 per month. These men are not furnished with an automobile but are allowed street car tokens for transportation between visits. During the busy season, the present staff of about a dozen men examine from six to seven thousand persons per month and some of the records show that one physician has made as high as thirty-eight calls in one day.

Salaries

There should be a general revision in the matter of salaries. We have gone thoroughly into the work done by the medical men in the city service. We have observed them at work, we have consulted with the various executives of the city, we have examined the list of questions asked by the efficiency board in obtaining positions and recognizing the high standard of men that is required for this service. We note with shame the fact that the salary for the most part of these men is but \$145 per month. We believe that beginning with the commissioners, the Health Commissioner and the Hospital Commiss-

sioner, a new scale of salaries should be adopted. We believe that the standard of physicians in city service should be as high as may be obtained anywhere else, within this city or any other. In order to do this, it is only fair to offer an adequate remuneration in order to maintain a high standard. We believe that because of the fact that the medical man has taken the attitude that his is a profession, and because of the fact that the public generally looks upon the service of a medical man as more or less charitable, and it is for this reason that the salaries of the medical men in the city service have not been advanced commensurate with the salaries of others employed in the city service. We believe that this is also true of the employees in the various city institutions. We find that there are medical men who have given up practically the entire part of their lives to city service. There is one physician who has served faithfully and well for forty-three years, one for thirty-four years, one for twenty-six years, one for twenty-one years and a large number for periods from five to sixteen years.

It is our conviction that the medical progress in the city is entirely dependent upon co-operation between the medical fraternity and the large municipal institutions and departments of the City of St. Louis. Progress in these medical institutions is dependent upon adequate compensation for services rendered to both employees and medical men. We believe that a committee from the Medical Society should be appointed with instructions to represent this Society in appearing before the proper municipal authorities and presenting at the proper time facts that have been collected by this committee and should speak with authority at all times, such as was done when the matter of hospitals was discussed before the special committee of the Board of Aldermen in considering the bond issue. We believe that it is within the province of the Medical Society to consider and endorse those items in the bond issue that appertain in any way to public health and that it is ethical and within the province of the physician by word of mouth and by personal influence such as he may have, to encourage and to foster public interest in municipal campaigns for the preservation of public health and for the furtherance of interest in municipal hospitals and institutions.

Respectfully submitted,

WM. D. AUFDERHEIDE,
MALCOLM A. BLISS,
D. CLAY TODD,
SEIGFRIED A. VAN HOEFEN,
RUDOLPH S. VIRR, *Chairman.*

From *Bulletin* of St. Louis Medical Society.

THE SPIRIT OF ST. LOUIS MEDICINE*

ROBERT E. SCHLUETER, M.D.

ST. LOUIS

A goodly number of us remember when the St. Louis Medical Society met in the Polytechnic Building on Seventh and Chestnut Streets. Many more date their membership back to the meetings in the rooms of the Board of Education on Ninth and Locust. Those were the days when a small proportion of the doctors of this city belonged. Those on the inside of the organization with its feeble influence held their heads aloof and looked down upon the less fortunate outsiders. It was an easy matter to reject a candidate for membership. Not a few were always ready and willing to cast an unfavor-

able vote upon request. On more than one occasion men of the highest character were refused admission. As a rule attendance was poor, but the annual meeting at the time of contested elections brought out 75 or 100 members. The faculties of rival schools of medicine frequently took opposite sides in the discussion, and at least one controversy between two warring professors of the same faculty was carried to the floor of the Society. More than a few eligibles would not join because of the continued bad feeling which always existed both inside and outside the Society. No good could come to the organization from such feudal tactics, which often led to resignations from membership.

Those were the days of speculative medicine, when almost all doctors still indulged in vague terms, when *materia medica* was discussed by all in about the same fashion as is still at times displayed by detail men who represent proprietary medicine concerns, when a certain number of physicians, mostly those wearing long patriarchal beards, did not believe in those "bugs which are called germs." Probably the last of these was the late Dr. William Johnston who denied the bacterial causation of disease until his death.

Still that day had its brilliant men. That was the environment of Pope and McDowell, Hammer and Lankford, Green and Michel. However, it also was the epoch of Hodgen, Maughs, Curtman, Linton and others. They would have been prominent in any setting, and as really big men would shine in any surroundings. The rank and file of the profession looked up to the leaders with respect and admiration but comparatively few took part in the work of the organization which had no state or national connection.

Thus things dragged on until shortly after the beginning of the twentieth century when the American Medical Association with its constituent state association and component county societies was reorganized. This was followed a few years later by the building of the Auditorium of the St. Louis Medical Society on the ground belonging to the Medical Library Association. Then the modest parents of the late Hugo W. Bartscher gave their estate as an endowment to the Society. The Library, which was the result of the work and devotion of such men as Lutz, Outten, Carson, Funkhouser and Grindon, could then be taken over and from that time on our power and influence began to spread. It was a home which made almost everyone feel interested. It was a place in which everybody had equal rights. The seed which was brought in by Saugrain, Farrar, Beaumont and Engelmann had grown into a robust plant and was bearing fruit. The city had thrown off the air of provincialism and was assuming metropolitan proportions. Local medical education then became concentrated in two of the best schools of the country and we began to compel the world at large to recognize and respect us.

As educated men we ought to have a tremendous influence. This influence, though it is increasing rapidly, should be much greater than it is. If there would only be more co-operation, more unanimity of purpose, fewer soreheads. These latter are dragging backward on the train of medical progress and just at this period of our Society's work are more evident than usual.

Some will be active with the affairs of the Local Society for a time and soon disregard it for some narrow and foolish reason. I have known several men of apparent high professional standing who would refuse to take an interest because some officer had not given them the consideration which they thought was due them. Even to this day some men are indifferent towards the organization for one

*Read at the St. Louis Medical Society's Get-Together Dinner, Armistice Day, November 11, 1922.

silly reason or another. It is childish to remain away because I do not like this or that officer, but it is done right along. The Society is held responsible for the actions of some individual who holds office for a short time only.

Think of the contracted viewpoint of one man who recently told me that he has never held office nor has been on any committee and therefore he owes nothing to the Society. He forgets or is mentally too blind to see the benefits which accrue from organized effort. There is room for everybody who will work. It is an easy matter to crowd out the office holders and that can be done by the soreheads if they will only take hold and work. Right now I extend another cordial invitation to all who are willing to enter the ranks of the workers and ask them to make a place for themselves among the office holders. A little time and application will bring results. There is room for everybody. It is absurd to think that any doctor is not indebted to medical organization. Whenever an unjust demand for malpractice is defeated it helps me. When payment of a just claim of the same sort is recommended the honor of the profession is upheld. When legislation, favoring high standards of medical education, is obtained the entire profession is elevated. When the public is properly instructed in health problems it makes it easier for you to explain to your patients the reasons why you outline a certain course of treatment or why a certain operation is indicated. It also prolongs the average expectancy of life and thus you have your patients for a little longer period and it may possibly also increase your own span of life a little.

If by cancer publicity a patient is induced to seek treatment for early malignancy and you succeed in permanently eliminating the disease the satisfaction of success is your additional reward. Even if you do not yourself visit the library you cannot escape benefiting from the information derived therefrom because it will be transmitted to you by your consultants who have found knowledge in the books, and by medical literature which you must read from time to time. So we are all indebted to the organization to a greater or less degree.

We take from the past; it is our duty to give to the future. That is the one thought that I am at this time constrained to present. What we now are and what we do depends less upon ourselves than on what has come down to us from former times. Our present-day knowledge is the accumulation of bygone days. We have added a little, but would be comparatively helpless if we had no access to the records of previous efforts, and in our turn we are obligated to hand it down to posterity. We take from the past; it is our duty to give to the future. With this thought in mind the new home of our Society was planned. Our city is now a metropolis and we must also expand to meet the needs of the profession. If the present generation will provide a proper building it may be possible for future generations to furnish the contents of such an edifice. The Library can then be increased to a size which befits a medical center. The buildings should also contain portraits and other reminders of our predecessors in medicine. In fact, anything that will give information and inspiration to the doctors of this city will be appropriate within its walls. We should not be content with something mediocre. Without higher aims and ideals nothing great or distinctive can be achieved. If we inflict a mortgaged building upon those who must provide the contents the task might be too great and our dreams may not materialize. If we erect an unencumbered structure and pass that on we are more nearly certain to perpetuate the work and transmit

a liberal spirit which can only spur posterity on to greater achievement.

Let us set aside our selfish attitude and feel grateful for what we have inherited from our predecessors and leave it for our successors in an improved and more accessible form. Remembering that, we take from the past; it is our duty to give to the future. This should be the spirit of medicine in St. Louis.—*Bulletin St. Louis Medical Society.*

LARGE SOCIETY MEETINGS

Never before in the history of the Jackson County Medical Society has there been the attendance and interest shown as in the past few weeks. On Tuesday evening last there were present in the General Hospital auditorium, occupying every chair, the available standing room and extending out into the hall, some 200 members and visitors. The particular occasion was the "cancer program" put on by the special committee, acting under advice of the American Society for the Control and Prevention of Cancer. The men drafted gave most practical presentations on the various types and localities of cancer, and were listened to most attentively by the audience, part of which were laymen and women.

Our program committee deserves credit for the hard work they are doing in securing for the regular programs the most progressive members of the Society, who are doing creditable and painstaking research work and recording their results. Too, the rich clinical material of the hospital wards is being made use of and adds a great practical value to the histories and diagnostic opinions given.

The program of next week, being biographical and historical, will be an added attraction. It is unquestionable that the chief lack in our professional lives is on the cultural side. It is also beyond question that the study of the lives of physicians who have made conspicuous successes tends toward the rounding out of our conceptions of life. Consequently the announcement of a program of this type is to be welcomed and its repetition encouraged. It is predicted that the reputation of Drs. Stoland and Major from the University of Kansas and our literary and witty Dr. Clendening will, with their historical symposium, draw a large group.

As is announced, weekly visitors are welcome to our meetings and especially should publicity and an invitation be given to other professional or literary groups who may be interested in the history and progress of medical science.

Though speaking in anticipation, it is hoped that in the future our Society may develop a greater interest in the biographical and personnel of our profession and that reviews or abstracts of the writings and sketches of physicians of merit and service may be regularly presented to us. The humanities play quite as important a part in progress as mechanics, physics, chemistry or physiology, and should be given more consideration than in the past in our regular programs.

It is urged that the present faithful and efficient efforts on the part of our program committee may not flag. Further, it is prayed that every member of the Society over 20 and under 80, single or married, male or female, bond or free, see to it that his or her chair is occupied every regular weekly meeting of the Jackson County Medical Society.—*Bulletin Jackson County Medical Society.*

BEAUMONT PROGRAM

Beaumont night was a most enjoyable affair. Professor Stoland's review of the progress of physiology of digestion in the past century was in keeping with

his reputation as a scientist. It is always humiliating to listen to such presentations because it reveals our own lack of progress. Dr. Major made Beaumont a living character. The painstaking researches, done under many discouragements and at much personal expense, is an example for the most humble servant in the ranks of the healing art. Beaumont's characterization of the then surgeon general, as expressed in his resignation, is a gem, one which every one should commit for use in those quiet moments when he thinks of the income tax collector. Clendening was feeling fine. He made of the neglected Alexis St. Martin a living being with all the aggravating traits of the average assistant in biological researches.

After all, the most illuminating thing was not so much that the program gave us a more intimate acquaintance with these important characters in medical history, but that it gave us all a more intimate acquaintance with the scholarly attainments of the men we rub elbows with day by day. Each of the addresses are well worth preservation in permanent form in order that we may have at hand both medical history and a delightful memory of a few of our friends at their best.—*Bulletin Jackson County Medical Society.*

HOW THE COUE SUGGESTION WORKS

"How are these seemingly miraculous cures attributed to Dr. Coue and other healers by suggestion explained?" a subscriber in Hiawatha, Kan., inquires of *The Star*. "There certainly are some wonderful cures. How does medical science account for them?"

A woman called on a Kansas City physician a year or two ago. Her right foot and right hand were drawn out of shape. She seemed hopelessly deformed. A careful examination convinced the physician that there was no physical basis for the deformity. It was a case of what is known as hysterical paralysis. The trouble was wholly mental. How the mind affects the body in such odd ways is not known. But it often does. Such cases are fairly common.

If the physician had been a sufficiently dramatic and impressive personality he might have made some passes over the woman, told her she was healed and sent her on her way cured. Except that the muscles of her foot had become so fixed in an abnormal position that it would have taken time to get the foot back to normal. Not caring to act in this capacity, however, the doctor sent her to the hospital and gave her an anesthetic. The deformed hand at once relaxed. The deformed foot had to be put in a cast to get it straightened. The medical man found she had been worrying over her ability to earn her living. He was able to relieve her of her worries with the co-operation of her friends, and she left the hospital permanently cured.

A woman was once brought to the Johns Hopkins clinic at Baltimore with an apparently paralyzed leg. She could not walk a step. Careful examination and X-ray photographs convinced the investigators there was no physical defect. It was a case of "hysterical hip." She was brought before the big public clinic held Saturdays in the presence of several hundred persons. The suave and polished physician in charge of the clinic presented her to the audience. Then his manner changed. He turned on the woman with a furious tongue lashing and ordered her to get out of the room. The shock effected the cure. She ran out with no more trouble from the paralyzed leg.

Throat specialists frequently meet cases of hysterical larynx. The patient suddenly cannot talk.

The medical man often finds his resourcefulness taxed in creating the belief in the person that nothing is the matter and that he really has not lost his voice.

This vast field of make-believe maladies, which are apparently physical but really mental, gives the opportunity for the Coues. In addition is the fact that cheerfulness and confidence are helpful in combatting any disease.

Is there any harm, then, in going to such persons for treatment? Perhaps not if the trouble is really in the mind. It is well to be certain, however, that the difficulty is mental. A case is on record where an enthusiastic follower of the Coue method told an asthmatic patient to run up stairs. He did so, but the asthma was a symptom of heart disease, and the patient never ran any further.—*Kansas City Star.*

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL, FOR 1923

(UNDER THIS HEAD WE LIST THE SOCIETIES WHICH HAVE PAID THE STATE ASSESSMENT FOR ALL THEIR MEMBERS)

Chariton County Medical Society, December 31, 1922.

Webster County Medical Society, January 6, 1923.

PROCEEDINGS OF THE WASHINGTON UNIVERSITY MEDICAL SOCIETY

Ninety-Second Meeting, December 11, 1922

1. PRESENTATION OF CASES.

A. A CASE OF DIABETIC COMA. TREATED WITH INSULIN.—By DR. SAM KAHN.

Patient male, aged 19, had been in hospital three times previously. From 4/1/21 to 4/29/21, 3/1/22 to 5/19/22 and from 8/21/22 to 11/21/22. His tolerance for sugar was practically zero. During the last admission he developed a mania for sugar, also persecutory auditory hallucinations, obstinacy and depressed state. However he did well under insulin treatment, being sugar free over an extended period of time. Patient was allowed to go home after continual refusal to take insulin, and on the day of departure went on a carbohydrate spree, continued until he became unconscious (12/6/22). He was brought back to the hospital at 12:15 p. m., 12/7/22, in a semicomatose condition. P. Ex. showed markedly emaciated young man, no edema (on discharge had edema). Marked air hunger, cyanosis, strong acetone breath. At first patient could be aroused at times. Patient had two generalized tonic spasms of all muscles before he became comatose, the hands assuming positions not unlike those seen in carpal spasm of tetany. B. P. 86/42, T. P. R. 36.8, 120, 28. Blood sugar was .407, CO₂ vol. per cent. 14. He was given 2 c.c. of insulin subcutaneously at 3:50 p. m. At 4:30 p. m. he was given 1000 c.c. of saline under the skin. The alveolar CO₂ was 14. At 6:45 p. m. the CO₂ vol. per cent. was 13.6. Blood sugar .370. At 8 p. m. patient sat up and took two sips of

water. Five minutes later could not be aroused. He received 3 c.c. more of insulin in the next hour. At 9:15 he showed a wheal at the site of the first insulin injection. At 10:15 p. m. he was given 250 c.c. of 8 per cent. sodium bicarb. intravenously, also 1 c.c. digifolin intravenously. At 12:30 a. m. 12/8/22 the blood sugar was .250. There were wheals now at the sites of the other insulin injections. At 12:55 a. m. the patient sat up, spoke fairly coherently, drank water. At 1 a. m. he was given 200 c.c. of 8 per cent. soda bicarb., intravenously. At 1:15 a. m. had incontinence of urine, was comatose. At 1:45 a. m. he was given 2 c.c. of insulin. At 6:30 a. m. he was given 2 c.c. more of insulin. At this time he answered all questions and sat up with support. At 10:30 a. m. the blood sugar was .241. The CO₂ vol. per cent was 59.5. He was put on a diet of P. 50, F. 100 and CH. 40. He ate dinner. At 1:45 p. m. urinated. This was the first urine in 12 hours. The sugar was 3 plus, acetone 1 plus. Urine at 7:05 p. m. sugar 2 plus, acetone negative. The insulin therapy was carried out as indicated with continued improvement of the patient. The patient showed altogether less psychic disturbance. He was discharged 12/16/22 (refused to stay longer). His CO₂ vol. per cent. at time of discharge was 66.4. Blood sugar .269. The B. P. 12/14/22 was 110/60. He was given insulin* to take home, having previously been instructed as to its use.

DISCUSSION

Dr. W. H. Olmstead: It is interesting to compare the results in this case to those formerly obtained without the use of insulin. Then we gave large doses of sodium bicarbonate and were able to wake patients from their coma but only for a short time after which they would sink again into a comatose state and die of heart failure. Now we give such cases insulin which enables the body to burn up the poison which is killing it. In the case of this boy, after receiving a not overly large dose of insulin, he failed to respond and it was thought best to give sodium bicarbonate. The dose we gave him would, without insulin, have had ultimate effect as far as bringing the patient permanently out of coma.

It is important to emphasize that our results so far do not indicate that insulin is a cure. We have, in our short experience, no evidence of improved tolerance. It can be compared to a wooden leg which gives good service as long as it is used but the patient is as bad off as ever if he leaves his wooden leg at home. Insulin does not take the "diet out of diabetes." On the contrary, dietetic treatment is as important as ever.

I enjoy stating that the success in this case is due solely to the efforts of the house staff who without aid from myself planned and executed the treatment.

Dr. Kinsella: There are two interesting features in this case, one is an illustration of the clinical axiom emphasized, I think, by Dr. Joselin, that diabetics with edema do not go into coma. When this boy was in the hospital before he was quite edematous. When he came in this time, in coma, he was apparently dehydrated and looked the picture of "skin and bones." The other point brought out in the report of the case furnishes the basis for a question which I would like Dr. Olmsted to answer, concerning the relationship of acidosis to the action of insulin. Eight hours after giving insulin the plasma CO₂ was still 14 and no clinical improvement had occurred. Was the administration of sodium bicarb. responsible for the subsequent good effect of insulin?

Dr. W. H. Olmsted: I think insulin works per-

fectly well in the presence of acidosis. I think the reason for giving sodium bicarbonate was that the boy had insulin first but did not improve as much as he should so that it was thought advisable to give some bicarbonate. The dose simply helped to neutralize the effect of the acid. I have never seen a case with CO₂ volume per cent. of 15 come out of coma although I have given large doses of bicarbonate. We must assign to the insulin the good results in this case. It turned the acid which was killing the patient into a food.

Dr. P. A. Shaffer: The results observed with this patient are remarkable, and illustrate in striking fashion the effects of insulin, and the great practical value of the work of Banting and his co-workers in definitely establishing the previously suspected existence of an active constituent in the pancreas. In view of the extensive clinical use which will be made of these pancreas preparations, it is desirable that the great toxicity of too large doses be fully appreciated. In our laboratory we have been able to prepare very active solutions from beef pancreas, and my colleague Dr. Doisy prepared from these solutions a concentrated and repurified material of which less than 1 mg. produces convulsions and death in rabbits. Occasionally with other preparations a delayed effect has been observed; after a prompt fall of blood sugar, but without other serious symptoms, the rabbit a few days later without further injections may have convulsions and die. Such effects are seen only from large toxic doses. So far as we have any evidence at present therapeutic doses are not dangerous. The great toxicity of the substance is emphasized as a caution against the use of too large amounts with patients. Glucose solution, subcutaneously or intravenously, usually gives prompt relief from the effects of an overdose in rabbits. This fact suggests the advisability of allowing diabetics under insulin treatment moderate amounts of food carbohydrate. Fasting animals (without glycogen reserves are more sensitive to insulin than when well fed.

B. CASE OF ESOPHAGEAL DILATATION.—By DR. ALFRED GOLDMAN.

This is a case of marked stenosis at the cardia of the stomach with resulting marked dilatation of the entire esophagus. Patient, a girl, aged 16. Chief complaint: Vomited one-half pint of blood one month prior to admission to hospital. Four days following, patient had a similar hemorrhage and vomited for a week following this attack. Subsequently patient had no further gastro-intestinal symptoms. The past history is negative except that the mother of patient noticed a regurgitation of food during sleep on six occasions during the past two years.

Physical Examination.—Patient under-nourished, anemic. Has chronic bronchitis; lungs otherwise negative. Hemic murmur in the pulmonary area. Wassermann and Tb. complement fixation tests negative. G. I. Fluoroscopic showed a marked dilatation of the esophagus with obstruction about the region of the cardia. Cause for obstruction probably cardiospasm and the hemorrhage perhaps resulted from a ruptured esophageal varix. It is possible however that a small ulcer directly in the cardia resulted in secondary local esophageal spasm. Patient has no G. I. symptoms during her week's stay in the hospital. She is to return in six weeks for further examination and the question of dilatation of the spasm by bougie will then be taken up.

2. IMPRESSIONS OF MEDICAL ENGINEER.—By DR. EVARTS A. GRAHAM.

*The insulin used was obtained from the Department of Biological Chemistry.

PROCEEDINGS OF THE ST. LOUIS NEUROLOGICAL SOCIETY

Meeting at the Veterans' Bureau Hospital,
October 30, 1922

Dr. F. M. Barnes, Presiding
Dr. L. B. Alford, Secretary

**1. POST-LETHARGIC SYNDROMES;
ILLUSTRATED BY CASES.—By Dr
WM. EDLER.**

Case 1. In October, 1919, about six months after discharge from service, had an obscure disease that was first diagnosed as typhoid fever but subsequently was thought to have been lethargic encephalitis. The patient ascribes his present condition to a motor cycle accident in service, when he was thrown on his head and was unconscious for a few minutes. This was probably a minor injury as he was not hospitalized for the condition and went through the rest of his service without any trouble. Briefly, his neurologic examination shows unequal pupils with very stiff light reactions. There is a left facial weakness and tremors of the facial muscles more marked on the right side. The uvula pulls to the left and there is weakness of the right muscles of mastication. The upper deep reflexes are exaggerated but apparently equal while the right knee-jerk is greater than the left, though both are exaggerated. No Babinski on either side is noted but a tendency to clonus on both. He shows no definite Parkinsonian tremors but the facies, attitude, muscular rigidity and general physical and mental sluggishness place him in this category.

Case 2. Discharged from army service September 3, 1919. In January, 1920, patient had an illness in which he was unconscious for seven weeks and unable to walk for the following nine months. He then returned to work as a hardware clerk but had to discontinue this because of nervousness, weakness and inertia. His neurologic findings show equal and regular pupils, very limited light reaction with better excursion to accommodation. The upper tendon reflexes are plus with a slight increase on the right over the left. This is also true of the knee-jerks. The left ankle-jerk is absent with the right diminished. The movements are slow and deliberate, the face is expressionless with fibrillation in the facial muscles. Typical Parkinsonian tremor of the extremities is not present but there are coarse tremors of the fingers that disappear when the hands are at rest. Subjectively this and the preceding case complain of constriction of the neck muscles but there is no complaint of dysphagia in either case.

Case 3. This case was confusing because of its history. The patient had influenza in February, 1918, and was hospitalized for one week. He states that about a week after discharge from the hospital he slowly developed a paralysis of the right side of the face with a weakness of the left arm. Simultaneously he had diplopia with visual dimness. The condition lasted about two weeks and he evidently fully recovered because following his discharge from the army he worked for two years as a blacksmith until February, 1922. Neurologically he shows irregular, unequal, stiff pupils with the lower musculature of the face slightly weaker on the right side. This is also true of the muscles of mastication. On May 15 of this year, my notes show an anatomic hypalgesia of the whole of the right 5th. The deep reflexes are everywhere diminished with the exception of the ankle-jerks which are out of proportion in activity to the other tendon reflexes. No signs of motor tract involvement. Tremor exists in both upper extremities, more pronounced on the

right, of a coarse rhythmical character. This tremor has progressed until now it is constant in the right hand and arm. Sensory findings in the lower extremities of a stocking type and dyschromotopsia with contraction of the visual fields and normal vision with one plus lenses coupled with puerile reactions and marked emotional instability in conflict made the diagnosis in the beginning between organic and functional disease a rather difficult one. We believe at this time he shows sufficient findings to classify him in the Parkinson's syndrome group.

Case 4. This patient had influenza in 1918 and was hospitalized for 30 days, returning to duty after discharge from the hospital. He was discharged in January, 1919, marked "physical condition good." In February, 1920, he had an illness that began with double vision, drowsiness and difficulty in urination. He was admitted here ten days ago and shows a Parkinson attitude and gait, muscular rigidity, irregular, stiff pupils, expressionless face, nystagmus to the right and facial tremor. His deep reflexes are all more plus on the left than on the right. There is tendency to bilateral clonus, and occasional suggestion of extension of the big toe to plantar irritation on the left side.

Case 5. This patient entered the army in April, 1917. Was discharged June 10, 1919; was never hospitalized during service and his discharge paper states "physical condition good." In May, 1920, he was sick for two months with influenza. During this illness he was unconscious for four days and after regaining consciousness he noticed such a decided tremor in his right hand that he could not hold a cup. He states that at that time his speech was very much impaired, that he talked very slowly and brokenly. Later his right leg began to get stiff and trembled. Neurologically he shows equal, regular, sluggish pupils, Parkinsonian attitude, gait, with lower 7th involvement on the right. He complains of dysphagia and urgency in urination. The deep reflexes are greater on the right and there is right ankle clonus. The patient frequently shows a right hemiplegic posture but he readily straightens his arm on intention.

These patients all show a fairly definite picture of striate body involvement—masked facies, sluggishly reacting pupils, muscular rigidity, and the accompanying gait and posture due to the latter make up the picture. From the laboratory standpoint their cerebrospinal fluid has been negative, but differential blood count has shown a consistent lymphocytosis ranging from 38 to 45. Whether these cases would show with their Parkinson picture peri-vascular hemorrhage with round cell infiltration and gliosis in the lenticular nucleus, as Schaller's non-Parkinson case did in the thalamus, is interesting to conjecture.

DISCUSSION

Dr. F. R. Fry: We are all now seeing a good many cases of this Parkinson-like syndrome, following indisputable cases of epidemic encephalitis. The question in our mind is, wherein they are different clinically and pathologically from true Parkinson. We perhaps have not yet enough data of either the clinical or pathological kind to determine this point. These cases develop faster in a much more general way than the typical case of Parkinsonism. Those that pass to a state of final rigidity look very much like the true Parkinson picture that has reached this same state of rigidity. I have been impressed, however, with some of these pseudo cases, if we may call them such, that the rigidity is much less than it would be in a case of paralysis agitans that had reached the same degree of helplessness.

I think it is well to determine what is or what is going to be the destination of the majority of

these cases. All the cases I have seen die have bulbar complications along with the extreme rigidity; I should say a recrudescence of the bulbar symptoms coming along with a rather rapidly advancing rigidity, that is rapid as compared with the ordinary Parkinson case.

From a therapeutic standpoint these situations seem rather hopeless. However, I am glad we are all still thinking about possibilities in this direction. The suggestion for lumbar puncture appeals to me as rational. Also the suggestion to use serum, particularly the horse serum. Of course, it will take many cases and a good deal of patience to reach a decision as to the value of such remedies as this.

Dr. M. W. Hoge: The resemblance of the tremor in disease of the lenticular nucleus to that of paralysis agitans naturally suggests the idea that in the latter disease this nucleus may be involved. We should, however, be cautious in committing ourselves to this conclusion until more is known of the pathology of paralysis agitans. The tremor in both instances seems to be related to the normal rhythm that maintains the muscle tone which in turn is regulated by the higher nervous centers. It seems that in disease of the lenticular nucleus this control is interfered with, permitting over-action of lower centers. While such regulative influence seems to be a function of this nucleus, it is well to recollect that many functions that in the lower vertebrates are located in basal ganglia have in the higher vertebrates been taken over by the cerebral cortex and until more is known of the nature of these tremors, the possibility of still other, and possibly cortical, involvement must be kept in mind.

Dr. M. A. Bliss: I think we are not far enough along in our observation of the residuals of encephalitis to know just what will happen but we know now that all who survive will not make full recovery. We have seen cases improve and relapse in a way analogous to the progress of a multiple sclerosis, as though the patchy type of this disorder was in a measure simulated by the residual lesions of encephalitis.

Dr. A. D. Carr: In several acute cases and about six residual cases of epidemic encephalitis treated on the Neurological Service of Barnes Hospital, injections of horse serum subcutaneously have been used with varying degrees of success.

In one of the acute cases of about one week's duration in which the cranial nerves were markedly involved, i. e., total internal and external ophthalmoplegia and a right 7th paresis, there was improvement after the second injection of 5 c.c. of normal horse serum subcutaneously. In another acute case of the myoclonic type there has been some slight improvement in the myoclonus. Whether such results are due to the effect of the foreign protein or not we are at present unwilling to say.

In the cases of longer duration, especially those of the Parkinson type, there has been in some instances some improvement in the general condition with considerable subjective relief of the rigidity. Objective findings are however but little changed.

At present the work is still in the experimental stage and hardly enough cases have been observed to warrant any conclusions.

Dr. Alford: I wish to mention a case of post-lethargic syndrome in a woman who became pregnant and gave birth to a child without event.

I also desire to mention some peculiar symptoms. In one case, Dr. Fry's, there was a constant moaning noise continuing day and night, keeping the patient awake and almost driving him and his family to distraction. He was unable to control the sound. In another case, there was the continuous protrusion of

the tongue, the patient being unable to keep it in the mouth and eating with difficulty.

As regards treatment: This state often grows progressively worse, even when coming on long after the initial lethargic attack, so that one would think of the infection as being still active. This would indicate therapy directed against the infection. As the meninges may be involved I would suggest a treatment for meningitis, namely, spinal drainage at frequent intervals. At the City Hospital recently we have found continuous spinal drainage very efficacious in septic meningitis, as advocated by Dr. Roland Hill of this city. We have also tried the injection intravenously of the spinal fluid withdrawn by lumbar puncture, the object being to get a result like that obtained from vaccines. As much as 10 c.c. of spinal fluid may be so injected without any particular reaction.

Dr. Nelson: I should like to ask whether or not the cerebrospinal fluid was examined in these cases, and, if so, what the findings are.

From my own experience in epidemic encephalitis and reports of other observers the cerebrospinal fluid presents a similar picture to that in syphilis involving the nervous system, viz., moderate increase in globulin, reaction to Lange's colloidal gold, and, when cellular content is increased, it is of the mononuclear lymphocyte variety, the only difference, then, being in the absence of the Wassermann reaction. Since this is true the question has come up in my mind as to whether or not any of these cases have been treated with the newer preparations containing arsenic and, if so, what results have been obtained.

In regard to the occurrence of residua in epidemic encephalitis, I will say, from the nature of the histopathology, it would seem to me that we should expect such occurrences. When we recall that the pathology, which is not unlike that of anterior poliomyelitis, is one of congestion, with numerous minute or moderate sized hemorrhages into the brain tissue, and round cell infiltration with a tendency to softening especially affecting the white matter, with subsequent gliosis, all of which changes especially involve the basal ganglia, residua in my estimation are inevitable.

Dr. Edler (closing): There is only one point that appears to be of some moment at this time with reference to the so-called post-lethargic encephalitis cases. We have in this service excellent opportunity to follow these cases, to examine them repeatedly and to observe them from time to time on repeated hospital admissions. I have seen quite a number of them progress from ambulatory to bed cases and finally to death over a period of years. These cases are still being termed "post-lethargic" and I feel that the nomenclature should be in these cases revised to "chronic encephalitis."

2. CASE FOR DIAGNOSIS.—By Dr. R. C. FAGLEY.

White adult, male, aged 25 years. Patient states that he had influenza in the service, October, 1918, but was never hospitalized. After being discharged from the army he worked in the lead mines until about July, 1921. There is no history of injury, malaria or syphilis.

He states that he noticed a weakness in the back in the spring of 1919 with a gradual increase in weakness of the lower extremities which, however, did not prevent him from working. About August 3, 1921, he noticed a disturbance in sensation in his legs; he had a numb feeling but was hypersensitive to touch. Associated with this sensory disturbance he noticed an increased weakness in the lower extremities so that at the end of one week he was to-

tally paralyzed from the waist down, had no control over the rectum and bladder, had to be catheterized and could not move his legs. This condition lasted for six weeks and during this time he had an irregular fever, though he states that the highest temperature was only two degrees above normal, and at the same time he apparently was delirious, or at least confused at times. His memory for occurrences during this six weeks is rather hazy. The wasting of the muscles in his legs and in his back began during this six weeks' sickness and after this time he noticed better control of his bladder and then began slowly to improve in general but states he was bothered for some time with annoying pains down his legs and back. He was not able to walk until January, 1922.

He denies venereal disease and denies the use of alcohol. There is no history of cramps in the stomach or any other symptom of acute lead poisoning. He states that he has never heard of anyone working in the lead mine ever having had lead poisoning.

He had four physicians caring for him during his acute sickness and one physician made a diagnosis of acute ascending paralysis (Landry's type).

Neurological.—There is marked atrophy of the thigh muscles, more marked in the anterior muscles, and the left thigh is $1\frac{1}{2}$ inches smaller than the right. There is some atrophy of the muscles of the leg, more on the left than on the right (by one inch) but not as marked as those of the thigh. Muscles are all flaccid and not spastic.

There is a marked atrophy of the muscles over the left hip. There is marked atrophy of the spinal muscles of the back below the 6th dorsal vertebra with some atrophy of the back muscles above this point so that patient is unable to hold the trunk erect. This condition existed at the same time as the paralysis of the leg so that it is not a progressive affair. There is a "winged scapula" on the left side. There is a fairly well marked atrophy of the supra and infrascapular muscles of the left side. There is some wasting of the interossei of feet and hands but this is not marked. Does not have strength to flex thigh on pelvis or extend leg, though there is slight movement on right side; is able to flex both legs and extend both thighs but latter movement is small. Muscle sense normal. Grip in both hands is very good, 105 degrees right hand; almost 110 degrees left hand.

At this examination unable to elicit any anesthesia or disturbance to pain or temperature. At times fibrillation of muscles of back, noted especially between scapulae.

Tendon reflexes upper extremity are exaggerated, left plus over right. Right knee-jerk is fairly active but there is very little response on left side, which may be partly due to the marked atrophy of thigh muscles. Achilles are present and active. On right side there is extension of big toe on stroking plantar surface of foot and although it does not come up as readily as a true Babinski yet is very suggestive. Big toe left side flexes readily. Unable to elicit abdominals or cremasterics at this examination.

Patient states that he is improving in motor power and also in control of bladder but at times has difficulty in starting flow.

No involvement of the cranial nerves or pupils. He is not very co-operative, is somewhat dissatisfied, and absolutely refuses a spinal puncture but for no particular reason. Repeated urinalyses are negative for any kidney and bladder disturbance. Wassermann of the blood is negative. He has run no temperature since admission to the hospital. Galvanic stimulation of the muscles of the leg and back shows

that they still react to electrical stimulæ; 25 amperes was used to elicit the stimulation. Blood examination shows number of red corpuscles to be 4,380,000, number of white corpuscles to be 7,300, hemoglobin per cent. 85, S. M. 16 per cent., L. M. 7 per cent., neutrophiles 77 per cent.

X-ray of lower cervical and all the dorsal vertebrae is as follows: The cervical and the dorsal vertebrae are apparently normal. Spina bifida occulta 3rd, 4th, 5th and 6th cervical. There is no Roentgen evidence of tumor formation.

X-ray lumbar and dorsolumbar spine is as follows: The lumbar vertebrae, sacrum and dorsal vertebrae are apparently normal.

History of gradual weakness of muscles of back and lower extremities following influenza would suggest a chronic condition, or at least damage done to cord at the time of the influenza which left the cord in a condition susceptible to an acute disease. I believe we can rule out a progressive muscular atrophy because of atrophy and paralysis occurring at the same time. The acute paralysis of the lower extremities with sensory and bladder involvement and the present finding of a suggestive Babinski on the right side with difficulty in starting urination, would suggest an acute myelitis, but in view of the flaccid paralysis and in the absence of bed sores, I believe that a diagnosis of acute myelitis is not justified as the bed sores in this disease always assume a serious nature. I believe amyotrophic lateral sclerosis (following myelitis) can be eliminated because the condition is not progressive.

With a history of acute stage, one week in development before the complete paralysis, the great extent of the sudden flaccid paralysis with tendency to repression and slight trophic disturbances and tendency to contractures practically absent and in absence of any sensory disturbance at present time, I believe that he had an acute poliomyelitis of adult type.

DISCUSSION

Dr. Fry: In this case I think the anamnesis is somewhat obscure, at least as far as I get the various data. It is surely a very unusual clinical picture at the present time. There is one suggestion in my mind concerning it. That is, whether the conception of a neuritis might not be made to cover the situation. I cannot readily reconcile the present picture with a myelitis of any type nor with a neuritis and that is the reason a neuritis occurs to me as a possible explanation. Under this head some very interesting cases have been described, some of them, I think, very similar to this one.

Dr. Bliss: Dr. Fagley's case should I think be carefully reported so as to bring it before a wider audience than the one present this evening. By this case one is reminded of post-grippe involvements of the cord and meninges, such as we saw following the great epidemic of 1888-89-90. There must have been in this case presented this evening a definite lesion of the body of the cord.

Dr. Edler: The case presented by Dr. Fagley is very interesting because of its history. In this service it is necessary because of the compensation features to verify the history as given by the patient. Leaving aside the available history of sudden onset, the case suggests to me an amyotrophic lateral sclerosis. I cannot agree with Dr. Fagley that the case is a simple one of poliomyelitis because there is fairly definite evidence of lateral tract involvement. The combination of anterior horn cell degeneration plus pyramidal tract involvement, even though no bulbar symptoms are present, is conceded in the literature to come under the amyotrophic lateral sclerosis classification. Dr. Fagley feels that this patient has improved, and while it is agreed

that he has shown improvement in so far as his first acute manifestations are concerned, I feel that his present findings with fibrillation in the muscles of the upper extremities suggest that the disease is progressing.

Dr. Fagley (closing): In connection with this case I should state that in our work it is necessary to make a diagnosis. This we have done on the evidence at hand, but I shall attempt to obtain a fuller history particularly from physicians who treated the case before it came to me.

THE SOCIETY OF NEUROLOGICAL SURGEONS

The Society of Neurological Surgeons met on December 15 and 16, 1922, at Dr. Ernest Sachs' clinic at Barnes Hospital and Washington University Medical School, St. Louis. The program was as follows:

Friday, December 15

Operative Clinic, Barnes Hospital. Craniotomy for tumor of the left temporal lobe.

Discussion of teaching neurological surgery to undergraduates.

Luncheon, Washington University Medical School.

Neurological Determinants in Questionable Surgical Cases (Cases and Case Histories). Dr. Sidney I. Schwab.

Demonstration of Chromyometer and Its Applicability to Nerve Injuries. Dr. Julian Y. Malone.

Demonstration of Use of Cardioscope for Surgery of the Mitral Valve. Dr. Duff S. Allen.

Demonstration of Cases on Borderline of Rhinology and Cranial Surgery. Dr. Greenfield Sluder.

Dinner, University Club.

Saturday, December 16

Operative Clinic, Barnes Hospital. Craniotomy for pituitary tumor, transfrontal route. Exploratory laminectomy.

Demonstration on Pathology of Gliomas. Dr. Ernest Sachs and Dr. J. B. Rice.

Luncheon at home of Dr. Ernest Sachs, 97 Arundel Place.

Demonstration of patients exhibiting unsatisfactory features either from point of view of operation, diagnosis or results.

CASS COUNTY MEDICAL SOCIETY

The Cass County Medical Society met in regular session in the court room at Harrisonville, Thursday afternoon, December 14. The meeting was called to order by the vice president, Dr. J. S. Tripplett.

Dr. F. Shoemaker, of the U. S. Veterans' Hospital of Kansas City, opened the program by demonstrating the methods of diagnosis of incipient tuberculosis by inspection, percussion, and auscultation. The methods were demonstrated on two patients the doctor brought with him from Kansas City for this special clinic. Several other patients from Harrisonville, suspected of tuberculosis, were also examined and the symptoms pointing to and against tuberculosis were clearly brought out by the doctor. It was regretted that on account of the bad weather so few of the physicians of our county were able to avail themselves of the opportunity of hearing Dr. Shoemaker.

After the members present examined X-ray pictures of cases of tuberculosis of the lungs, Dr. J. F. McCann, of Warrensburg, read an interesting and practical paper on "The Tonsil As a Factor in Focal Infection." The doctor proved by his paper that he was master of the subject and brought out

a number of important practical facts. After a discussion of this paper, Dr. W. G. Thompson, of Warrensburg, read a paper on "The Importance of Early Diagnosis of Hyperthyroidism." This paper proved to be a rare scientific treat for the physicians who were present, and contained so many important facts of modern investigation and methods of diagnosis of these cases that no physician of our county could afford to miss it. Following the discussion of this subject Dr. M. P. Overholser preferred to defer the reading of his paper on "Toxic Thyroid" until some future meeting on account of the lateness of the hour and the small number of physicians present; however, he read extracts from the paper emphasizing the facts brought out by Dr. Thompson. In the discussion which followed the fact was emphasized that in all communities there are a number of masked, ill-defined or border-line cases of toxic thyroid which are frequently not recognized by physicians and often diagnosed as functional diseases of the heart, neurasthenia, hysteria, circulatory disturbances, and other nervous conditions. The fact was also emphasized that many patients suffer from toxic thyroid with no noticeable enlargement of the gland. The various methods of treatment of these cases were quite thoroughly discussed, medical, surgical, and X-ray radiations. The preponderance of argument seemed to favor X-ray radiations in the treatment of cases of exophthalmic goiter.

Dr. Ramey, president of the Society, thanked the visiting physicians for their valuable contributions to the program.

CLAY COUNTY MEDICAL SOCIETY

The Clay County Medical Society met in Liberty, December 27, at 6 p. m., whereat thirty-two members and wives sat down to a sumptuous banquet tendered by our Liberty members at the New Liberty Inn.

The table was beautifully decorated with the features common to Christmas festivities, and it was a right merry, fraternal and congenial body of Clay County's best men and women who sat down to dine in our last meeting of the year 1922. The secretary long ago ran out of superlatives in describing these Clay County dinners and is now on the lookout for newer and bigger adjectives that may keep pace with our ever-increasing dietary possibilities.

After the banquet the ladies were entertained by the local committee in a royal manner. The business session followed the dinner at our time-honored place of meeting, Dr. Matthews' office, Dr. E. C. Hill presiding.

Election of officers: Dr. E. E. Peterson, of Nashua, president; Dr. J. E. Baird, Excelsior Springs, vice president; secretary-treasurer, Dr. J. J. Gaines, Excelsior Springs, re-elected; delegate, Dr. E. C. Hill, Smithville; alternate, Dr. C. H. Suddarth, Excelsior Springs; censor, Dr. W. J. James, Excelsior Springs, re-elected. The new officers responded in well-chosen words to the demand for "speeches." The secretary read a financial report of the year's work. Two members were dropped from the roster for non-payment of dues and non-affiliation.

Dr. Ralph Major, head of the department of medicine in Kansas University, delivered a stereopticon lecture on "Technique of Basal Metabolic Determinations," with many case reports showing the value of the procedure.

This was one of the best and most scientific papers of the year. Space forbids detailed report, but our few absentees missed a treat.

The secretary was then "ordered out" and while taking a short nap in Dr. Matthews' laboratory, was

voted a handsomely engraved walking stick—"a mark of esteem," they said. Ain't this a good world, after all?

Thus the Clay County Medical Society enters its 69th year.

J. J. GAINES, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society held its 25th meeting for the year 1922 at the Y. M. C. A., Joplin, on Tuesday evening, December 5. The following members were present: Drs. Moody, Snyder, Leaming, Lanyon, Harutun, Cummings, Pifer, Post, Hazelwood, L. C. Chenoweth, McGaughey, Gaddie, Hoshaw, Ketcham, Sims, Alberty, A. B. Clark, Gregg, Stormont, E. D. James, Powers, Lowdermilk, LaForce, Clinton, R. M. James, Grantham, Burch, Henry, Balsley, Thornton, Dickerson, J. A. Chenoweth, Tyree, S. H. Miller.

The annual election of officers was held and the following officers were elected:

President, Dr. R. M. Stormont, Webb City; vice president, Dr. L. C. Chenoweth, Joplin; secretary, Dr. Jas. I. Tyree, Joplin; treasurer, Dr. M. C. Shelton, Joplin; censor, Dr. E. D. James, Joplin.

Dr. A. L. Carpenter's application was read for the first time.

It was voted to invite the members of the Legislature from Jasper County to meet with us for the purpose of discussing medical legislation, December 12, 1922.

JAMES I. TYREE, M.D., Secretary.

MONTGOMERY COUNTY MEDICAL SOCIETY

The Montgomery County Medical Society met at Dr. Nowlin's office in Montgomery City, Tuesday, December 12, 1922. The following were present: Drs. G. E. Muns, E. W. Tinsley, David Hudson, David Nowlin, Buell Menefee, of Montgomery City; O. L. Rutherford, Bellflower; R. G. Hereford, Wellsville; J. T. Leslie, Rhineland; D. W. Griffin, Mexico.

Dr. Elsworth S. Smith, St. Louis, was invited to address the Society and took for his subject "Quinidine in Auricular Fibrillation." He gave the results in a series of cases at Barnes Hospital both with and without complications, also comparing results of the administration of quinidine in auricular fibrillation with digitalis.

The following officers were re-elected for the ensuing year: President, Dr. David Nowlin; vice president, Dr. G. E. Muns; secretary, Dr. Buell Menefee; delegate, Dr. G. E. Muns; alternate, Dr. David Nowlin.

BUELL MENEFEE, Secretary.

RANDOLPH COUNTY MEDICAL SOCIETY

The Randolph County Medical Society was host to the Tenth Councilor District, at the meeting held at Moberly on the evening of November 21, at which time doctors from Chariton, Howard, Boone, Monroe and Randolph Counties were present. After a splendid banquet in the Merchants Hotel dining room we adjourned to the parlors of the hotel where one of the best programs it has even been our pleasure to hear was presented.

Dr. Ernest Sachs, of Washington University, gave us a splendid talk on "Treatment and Results of Brain and Spinal Cord Tumors," which was well illustrated with lantern slides and all felt that it was well worth while to be there. Dr. M. P. Parrish, Decatur, Ill., Chief Surgeon of the Wabash Railway Hospital, in commenting on Dr. Sachs' talk, asserted that it was "worth the trip to hear

it even if he had had no business to bring him here."

Dr. I. D. Kelley, of Washington University, followed with one of his usual practical talks on "Solution of the Adenoid Problem," and really, after hearing him, it looks like he has "did it."

Everyone present pronounced it a most profitable evening. Dr. D. A. Barnhart, Huntsville, Councilor of the District, presided in his usual affable manner. In all thirty physicians attended the meeting.

The following guests were present: Dr. A. R. McComas, President of the State Medical Association, Sturgeon; Drs. I. D. Kelley and Ernest Sachs, St. Louis; Dr. M. P. Parrish, Decatur, Ill.; Dr. G. W. Hawkins, Salisbury, Councilor of the Eleventh District; Dr. P. C. Davis, Madison; Dr. Winters, of U. S. A. Headquarters; Drs. Dickerson and Cecil, Armstrong; Dr. Huber, of the Wabash Hospital, Moberly.

The following members of the Society were present: Drs. Barnhart and Epperly, Huntsville; Drs. Nichols and Burkhalter, Higbee; Drs. C. B. Clapp, R. D. Streeter, C. B. Lawrence, L. A. Bazan, T. L. Fleming, S. T. Ragan, L. O. Nickell, F. L. McCormick, G. O. Cuppidge, S. P. Towles, O. K. Megee, J. Maddox, M. E. Leusley, and C. H. Dixon, Moberly.

C. H. DIXON, M.D., Secretary.

BOOK REVIEWS

THE SURGICAL CLINICS OF NORTH AMERICA. (Issued serially, one number every other month.) Volume II, Number VI (St. Louis Number, December, 1922), 248 pages with 105 illustrations and complete index to Volume II. Per clinic year (February, 1922, to December, 1922), paper \$12.00 net, cloth \$16.00 net. Philadelphia and London: W. B. Saunders Company.

This number holds particular interest for the physicians of St. Louis and Missouri because of it being devoted entirely to a discussion of cases passing through the clinics of St. Louis surgeons. The book opens with several cases from the clinic of Dr. Evarts A. Graham, at Barnes Hospital. The other contributors to the number are: Dr. Willard Bartlett, Missouri Baptist Sanitarium; Dr. Nathaniel Allison, Barnes Hospital; Dr. M. G. Seelig, the Jewish Hospital; Dr. Fred J. Taussig, Barnard Free Skin and Cancer Hospital; Dr. Ernest Sachs, Washington University Medical School; Dr. Harvey S. McKay, St. Louis University; Dr. W. T. Coughlin, St. John's Hospital; Dr. Fred W. Bailey, St. John's Hospital; Dr. Barney Brooks, Barnes Hospital; Dr. Roland Hill, Bethesda Hospital; Dr. George Gellhorn, Barnard Free Skin and Cancer Hospital.

MENTAL HOSPITAL MANUAL. By John Macarthur, M.R.C.S., L.R.C.P., Senior Assistant Medical Officer, London County Mental Hospital, Colney Hatch; Lecturer on Mental Diseases to the Northeast London Post-Graduate College. 215 pages. Henry Frowde and Hodder & Stoughton, 1921. The Lancet Bldg., London. Oxford Medical Publications. Price, \$5.25.

Brief, concise, clearly written and yet showing comprehensive knowledge of asylum problems. Aside from the portions dealing with the English laws the book is perfectly adaptable for the American student and practitioner.

G. A. J.

THE JOURNAL

OF THE

Missouri State Medical Association

The Official Organ of the State Association and Affiliated County Societies
Issued Monthly under direction of the Publication Committee

Volume XX

ST. LOUIS, MO., FEBRUARY, 1923.

NUMBER 2

E. J. GOODWIN, M. D., EDITOR
3529 Pine St., ST. LOUIS, Mo.

PUBLICATION { W. H. BREUER, M. D., Chairman
COMMITTEE { S. P. CHILD, M. D.
M. A. BLISS, M. D.

ORIGINAL ARTICLES

THE FACTOR OF OBESITY IN SURGICAL OPERATIONS*

WALTER C. G. KIRCHNER, M.D.

ST. LOUIS

The surgical handling of the obese subject presents a distinct problem which, it seems to me, merits special consideration. The obese patient may become one of surgical interest solely on account of the abnormal deposit or distribution of the fatty tissue itself; on account of the obesity in its association with other diseases of surgical interest; or on account of the increased operative risk. The difficulties of diagnosis and also of operative procedure are often very great and it may be well at the start to illustrate certain phases of the subject by giving briefly the report of a case that was referred to me for examination and surgical treatment:

CASE 1. Mrs. M. H., aged 34 years, presented herself for treatment April 15, 1921.

Present Illness.—Patient complained of pain on the right side of the abdomen below the free costal margin. The pain at times was sharp, came on suddenly and varied in intensity and duration, lasting sometimes an entire day. Attacks of pain would sometimes occur in the middle of the night. The first attack was in 1914, when there was pain in the left shoulder, on the right side of the abdomen and in the epigastrium. Her family physician gave her medical treatment at the hospital where she remained for thirteen days, feeling much better at the end of this period. For about a year she was without pain or symptoms. In 1915 the trouble recurred and at times the pain was so severe that a sedative was required to give relief. The pain had no special relation to the taking of food and would come on at any time of the day or night. The patient was never jaundiced nor were the sclera ever tinged yellow. Vomiting occurred in the beginning but not during the last five years of her trouble. During the last few years the patient has complained of constipation and she has taken daily some sort of purgative water. There has been no disturbance of the kidney or bladder.

Previous History.—Patient was healthy as a child. During an epidemic of influenza she contracted the disease and has also had tonsillitis. Her general health was good except for the present trouble. Her

menstruation began in her fifteenth year and has always been regular and without pain. She had two children; both, however, died in infancy. There were no miscarriages. She slept well and the appetite has been good, though of late she has restricted herself to one meal a day. There have been no skin eruptions nor disorders of the nervous system or of the senses. The patient has always been able to be up and about and to work, and has never had any trouble with her feet or legs. Up to her twentieth year she was slender and of normal size, but during the last twelve years she has weighed over 300 pounds. Her paternal grandmother was stout, but others in the family were of normal size. Her mental development was normal.

Physical Examination.—Patient is corpulent (Figs. 1, 2, 3, 4). The face, hands, feet, wrists and ankles are normal and all movements are free and easy. The arms, thighs, legs and trunk are covered by excessive deposits of fat. The breasts are pendulous. The abdominal fat hangs as a huge fold and covers the upper portion of the thighs. The fat on the back hangs on as large folds, resting, as it were, on the upper portion of the hips and buttocks. There is much fat about the regions of the hips and buttocks. The legs and especially the thighs are much enlarged by fat. On the inner and upper portions of the thighs the fat hangs in masses. The arms are also much enlarged by fat, which hangs loosely on the under side. The deposits of fat are firm, mostly smooth and not nodular, and are uniformly and symmetrically arranged. The pendulous portions are freely movable and the abdominal panniculus adiposis has considerable weight.

Measurements.—Patient's weight was 317 pounds; height, 5 feet 3 inches. Face, neck, hands and feet were of normal size. Circumference: Forearm, 12½ inches; arm, 17 inches; chest, 46 inches; waist, 57 inches; hips, 66 inches; thigh (upper part), 35 inches; thigh (lower part), 28½ inches; calf, 20½ inches; ankle, 11 inches. At one time the patient weighed 360 pounds, but while under treatment (thyroid extract) lost 65 pounds.

There have been no nervous manifestations. The reflexes were normal. There were no painful areas in the fat or on the skin.

Auscultation and percussion of the heart and lungs revealed nothing abnormal. Abdominal palpation elicited muscular rigidity in the region of the gall-bladder and a moderate amount of pain on firm pressure.

Diagnosis.—Lipomatosis universalis (adiposis dolorosa?); cholelithiasis, cholecystitis.

Treatment.—On account of the patient's size several surgeons who had examined the case refused to operate. The diagnosis of gall-stones seemed plausible, and a waiting policy was likely only to invite more serious trouble. Operation was therefore advised without delay.

Operation.—Half an hour before the time of operation morphin sulphate, gr. 1/4, and atropine sul-

*Read by title, Southern Surgical Association, Pinehurst, N. C., December 14, 1921.

phate, gr. 1/150, were given, and just before the operation another dose of morphin sulphate, gr. 1/8, was administered hypodermically. The operation was started under local anesthesia, using novocain in solutions varying from 1.0 per cent. to 0.5 per cent. The incision just internal to the outer border of the right rectus muscle was seven inches

brought the gall-bladder directly into view. The colon and omentum were adherent to the distended gall-bladder, which was surrounded by a mass of adhesions. The gall-bladder was reddish in color, measured about six inches by one and one-half inches, tense, so that gallstones could not be felt and it could not be emptied by gentle compression. Chole-



Fig. 1. Case 1. Front view showing dependent masses of fat. Feet and hands normal.



Fig. 2. Case 1. Rear view showing deposits of fat on back, buttocks and thighs.



Fig. 3. Case 1. Side view showing abdominal panniculus adiposis which reaches well down on the thighs.



Fig. 4. Case 1. The abdominal panniculus adiposis being elevated; demonstrates a distinct indication for lipectomy.

long, owing to the fatty layer which was four inches in thickness. The abdominal cavity was opened and the wound margins were held apart with some difficulty. The omentum was large and thick and the intestines and mesentery were abundantly supplied with fat. The use of local anesthesia was rather more difficult than in thinner subjects. The exposure

cystectomy was decided upon, but owing to difficulty in exposing the gall-bladder at this stage it was thought best to resort to general ether anesthesia. The gall-bladder was S shaped, as a result of the adhesion, and enucleation proceeded from the fundus toward the duct.

Cholecystectomy was performed, the ligated stump

being buried and covered with peritoneum. There was no hemorrhage nor escape of bile or other complication though on account of the fat and the great depth of the wound the operation was made much more difficult and consumed more time than usual. The abdominal wall was closed in layers without abdominal drainage. The fat was approximated by mattress silkworm-gut sutures, "equesetine" was used for the skin and a small rubber drain was placed at the lower angle of the wound. At the close of the operation the pulse rate was 80 and the patient was in good condition.

The gall-bladder was filled with dark, inspissated bile and there were about two ounces of slate-colored gallstones, the size of peas and smaller. The gall-bladder wall was thickened and inflamed and the cystic duct was almost occluded.

The mattress stay sutures were loosened on the second day and they were all removed by the fifth day. They were carefully watched to avoid pressure necrosis. Fat globules and oily fluid escaped from the lower angle of the wound and this type of drainage kept up for nearly two weeks. The wound healed without complication, the patient making an uninterrupted recovery. The size of the patient and the management of the masses of fat taxed the skill of the nurses in the post-operative handling of the patient.

Before attempting a serious operation on the obese patient careful inquiry should be made as to the cause of the obesity. In the obese patient the fat is accumulated in abnormal amounts and is found not only in the subcutaneous tissues but also in other tissues and organs. The increased fat production results from deficient oxidation of ingested fats, starches or even of proteins. Heredity is a predisposing factor, more than half of the cases being traced to this cause, and in this type the obesity tends to develop early. Certain nervous affections, the so-called dyscrasias and other allied diseases that lower oxidation, may be causative factors. The excessive taking of certain kinds of food and of water or beverages in many persons, especially when combined with a sedentary life, increases fat production and is the cause of the so-called alimentary obesity. When the fat increase is out of proportion and independent of the taking of food and exercise, then other factors are at work and the condition is spoken of as *constitutional obesity*. In the light of endocrinology alimentary obesity is classed as exogenous, while constitutional obesity is endogenous in character. The commonest type of obesity is lipomatosis universalis. A nodular form of obesity has been described by Anders, of Philadelphia, under the name of adiposis tuberosa simplex. Dercum has designated a special form by the term adiposis dolorosa (Figs. 5, 6, 7).

During recent years much thought and experimentation have been devoted to the subject of internal secretion and several types of obesity, endogenous in origin, have been recognized. Obesity may thus be due to thyroid

dysfunction, to hypopituitarism, to hyperadrenalinism or to involvement of the sex glands. One or more of these functions may be factors in a given case, so that a careful study should be made before medical or surgical treatment is instituted.

The diagnosis of disease in the obese patient is often very difficult. On account of the increase in fatty tissue the physical examination is rendered difficult and the findings are often uncertain. Then, too, the obesity itself may cause certain symptoms. Fatty degeneration or infiltration of the heart may embarrass the heart action and cyanosis, dyspnea, and pulmonary complication—such as passive congestion and edema—may be present. Diabetes and gout are frequently encountered. The liver may be enlarged and digestive disturbance and constipation are frequently complained of. In the female the menstrual function is often disturbed. Certain forms of obesity are characterized by painful areas on the skin and in the subcutaneous tissues.

Abdominal symptoms may be especially difficult to interpret. Fatty deposits in the mesentery and in the intestine may give rise not only to intestinal disturbance but may also be a cause of obstruction. That intraabdominal deposits of fat may cause a definite group of symptoms has been remarked by Finney,¹ who reported three cases, all of them showing well-marked abdominal symptoms, such as right-sided abdominal pain and tenderness and symptoms suggestive of gastric or duodenal ulcer. At the operations deposits of fat were found in the omentum, the mesentery and in the ascending and transverse colon.

In a case of adiposis dolorosa that came under my supervision at the City Hospital, and which I examined, the abdominal symptoms were a marked feature, and inasmuch as obesity of this type is very unusual a special description of this form is warranted. A clinical study of this case was the basis of an excellent paper by Dr. W. W. Graves and Dr. W. H. Cook² and the data in the following report of the case are taken from their article.

I am indebted to Dr. C. H. Shutt for the photographs of this case (Figs. 5, 6, 7).

CASE 2. C. R., a negress, aged 62 years, was admitted to the City Hospital, October 16, 1907, on account of general weakness, painful ulcer on the left leg and shooting pains in the lower extremities. She also complained of pains which were more or less constant in the region of the navel and epigastrium and which radiated to the left side. The trouble began about six years previous to her admission to the hospital, at which time she noticed that her hips and lower extremities were enlarging and, locomotion becoming difficult, she was compelled to use a

1. Boston M. and S. J., 1912, clxvii, 495.
2. Med. Fortnightly, 1908, xxxiii, 341.

cane. The patient's mother was the only one among her relatives that was corpulent. The patient had always been well. She had nine full-term pregnancies and one miscarriage. The menopause occurred in the fiftieth year.

Physical Examination.—The patient weighed 245

the forearm. The breasts were pendulous, large and flabby and comparatively free from fat accumulations. On the back of the trunk on either side the fat hung in large folds, suspended, as it were, from the scapula and lower costal margins and from the lumbar regions. The abdominal fat was pendulous



Fig. 5. Case 2. View from the front showing accumulations of fat especially marked about the hips and lower extremities. There is a large ulcer on the left leg.



Fig. 6. Case 2. Side view showing folds caused by dependent masses of fat, and grotesque accumulations about the buttocks, thighs and legs.



Fig. 7. Case 2. Patient seated, showing dependent masses of fat under arm, over chest and abdomen, and especially marked at the thigh and leg. The hands and feet are about normal.

pounds and her height was 5 feet 8 inches. Abnormal yet rather symmetrical accumulations of fat were present on the trunk and on the upper and lower extremities of the body (Figs. 5, 6, 7). The fat accumulations hung loosely from the posterior portions of the arms and from the dorsal aspects of

and descended over the pubes to the upper part of the thighs. The navel was in the center of this fold in a deep transverse fissure. The gluteal regions and the lower extremities except the feet were misshapen by large coalescing accumulations of fat, which, however, were more or less symmetrically arranged. On the anterior and lateral surfaces of the thighs the fat masses were somewhat nodular, but on the posterior surfaces the fat hung in huge, pendulous masses which in the sitting position reached to the middle third of the leg. The patella were buried in fat and the anatomical landmarks about the knees were obliterated. The circumference measurements of different parts of the body were as follows: Lower end of forearm, $8\frac{1}{2}$ inches; arm, 19 inches; calf, 24 inches; over mass in popliteal space, $32\frac{1}{2}$ inches; about pelvis and gluteal regions, 54 inches; level of umbilicus, 51 inches; chest, $39\frac{1}{2}$ inches. Pressure over the apices of the lipomatosis masses in the lower extremities caused pain, especially over the nodular masses in the lower third of the leg. Pressure over the nerve trunks in the lower extremities caused pain, but pressure did not cause pain in the upper extremities. The lower margin of the liver was palpated through the thick abdominal wall. The spleen was not enlarged. The lungs and heart revealed nothing abnormal upon examination. The temperature was normal, the pulse rate 88, and the respirations 24 per minute. Based upon the clinical findings and the symptom-complex the diagnosis of adiposis dolorosa, as described by Dercum in 1888, was made. The leg ulcer was cured by giving it ordinary care and rest, and, owing to the patient's age, weakness and asthenic condition, no further attempt was made to treat the case surgically.

There are certain diseases and surgical conditions that are prone to occur in the obese.

Inguinal and femoral hernias are quite frequently met with and in fat women umbilical hernia is especially common. Interstitial hernia is also quite often encountered and occurs mostly in the epigastric region. It is well known that gall-bladder disease and also uterine fibroids are frequently found in fat individuals. Malignant tumors, carcinomas of the breast in particular, have no special respect for the corpulent. Leg ulcers are common and are frequently associated with infections, probably on account of the lowered resistance which fatty tissue offers. Appendicitis and salpingitis also occur. Excessive deposits of fat around the intestine, as well as submucous lipoma, may produce intestinal obstruction. Lipomata in general and interabdominal deposits of fat in the nature of lipoma, to which attention has already been called, may complicate general obesity and require special surgical attention. Then, too, there are various kinds of emergencies, gunshot and stab injuries, fractures, etc., that are encountered in the obese as well as in others.

From the viewpoint of the surgeon, fat as one of the tissues of the body has special applications and is utilized in plastic operations to fill in or to build up anatomical defects, to furnish pads, to render structures more pliable, to prevent adhesions and to serve as a support for relaxed or movable organs. Surgery is also directed toward the accumulation of fat, which occurs either in discrete masses, as in the case of lipomata, or, as in the case of the obese, in the diffuse distribution such as is found in panniculus adiposis, where in the operation of lipectomy large masses or slabs of fat are sometimes removed. Of special importance, however, is the surgery which is directed toward the relief of diseases and surgical conditions in which the obesity itself constitutes a serious complication, and it is this aspect which I wish to emphasize in dealing with the subject.

The general care and treatment of the obese before and after operation demands special attention. In the hospital the usual routine care of the patient is adapted to meet the ordinary type of case, but this care is often inadequate and deficient when applied to the obese patient, and special measures must, therefore, be instituted. In this connection it may be well to call attention to certain physical factors and data which increase the difficulty of handling the obese patient, namely, difficulties of transportation; disproportion of the patient's size to the bed or operating table; the necessity as a rule for the recumbent position, predisposing thereby to pulmonary complications; difficulties attending catheterization and the giving of enemas; the enervating effect of hot weather and the care of the skin; the man-

agement of pendulous and movable masses of fat and the selection of proper binders and supports, and the element of increased operative shock due to a general lowered resistance.

In the preoperative handling special regard should be had for the diagnosis as a guiding factor and as to whether or not the surgical condition is acute or chronic. The region of the body affected—abdomen, head, neck, chest or extremity—often determines the kind of care which should be given the patient.

In the obese patient the surgical risk is greatly increased, and this may also be inferred from the fact that the obese are considered bad insurance risks. Fatty infiltration, if not an actual fatty degeneration of the heart, liver or kidneys, is common in the corpulent. In the presence of infection the danger of fatty degeneration increases, and then, too, this type of degeneration is apt to be a special complication following the use of chloroform anesthesia. Diabetes in association with obesity affords an added risk. The post-operative risk is also increased in that infection and tardy wound-healing are common owing to the lack of resistance to bacterial invasion and to the slow recuperative power of fat. It should be emphasized that surgical wounds in fat subjects require special attention and care.

Post-operative wounds of fatty tissue were the subject of a special investigation made by v. Verebely³ who studied hernia and laparotomy wounds, amputations, etc., noting their condition at intervals varying from twenty-four hours to five weeks and based upon his observations the following summary was made:

The studies of v. Verebely help to explain why wounds in fatty tissue heal slowly, especially when the time of healing is compared with that of peritoneum in which a firm fibrous exudate develops within ten hours and in which in less than three days strong union takes place with the formation of new tissue. These studies have shown that macroscopically after forty-eight hours, there is but little change noticed and the fat surfaces appear pale and dry. There is then a gradual serum infiltration, so that on the third day the fat lobules stand out prominently between the connective tissue septa; a thin fibrinous exudate devoid of blood vessels and easily removed covers the fat lobules by the end of the fifth day. The exudate becomes thicker, is gradually vascularized, resembling granulation tissue, and by the end of the ninth or tenth day grayish-red strands dip down into the fat and by increase of the connective tissue render the structure abnormally dense. After four-

3. Beitr. z. klin. Chir., 1907, LIV, 320 and Prog. Med., Dec., 1909, 213.

teen days a fibrous change takes place in the deeper layers of the granulation tissue and a gradual retraction of the surface may be noticed.

The microscopic study shows that there are two distinct processes at work: the one relating to changes within the fat cells, the other to changes between these cells; the latter process being characterized by the changes that usually take place in the formation of connective tissue, the fat lobules acting as benign foreign masses. In respect to the former process, among the various changes may be mentioned: (1) A disintegration of fat cells and invasion of lymphocytes and leukocytes; (2) serous atrophy, in which the cells retain their original shape but the space occupied by fat is filled by a clear, watery fluid; (3) simple atrophy, a permanent change in which the size of the cell is decreased; (4) active protoplasmic changes which lead to the disappearance of fat and the formation of cells resembling the plasma cells in fetal fat, characterized as round, pale cells with large nuclei; and (5) proliferation atrophy, as described by Fleming.

In the preliminary care, when opportunity offers, much can often be done to prepare the patient for the ordeal of operation. Aside from the usual preoperative measures special attention to diet, to exercise or to organotherapy may be the means of materially reducing the weight and fat of the patient. In the case of a patient weighing over 400 pounds and suffering with a leg ulcer who came under our care at the City Hospital, by means of regulation of diet and exercise alone a reduction of nearly 200 pounds in weight was accomplished. When admitted the patient was so fat that he could not reach the back part of his neck nor was he able to tie his shoelaces and properly dress himself without help. He was allowed but one meal a day, consisting of a small portion of meat, all starchy and sweet foods having been proscribed and active elimination was encouraged by the daily use of a saline laxative. He was also put to hard physical work. In a comparatively short time there was a pronounced reduction in the amount of fat, his general health improved and his usefulness increased to the extent that he was able to look after the regular duties of a ward attendant.

The post-operative treatment should be directed toward the prevention of complication, pneumonia, cardiac failure, wound infection, reopening of wound, hernias, embolism, etc. Since the surgical repair of wounds in the obese is slow the patient should be kept in bed until healing is complete. The aftercare presents special problems and the ability and skill of the nurse is often taxed to the utmost.

In operations on the obese attention may be

called to certain special observations that apply to this type of case. In addition to the usual operative difficulties there are encountered increased difficulties due solely to the presence of fat. The fat accumulations in the obese are often of such a nature that the normal topography of the body and of regions of the body is altered and the surgical landmarks are lost. This is true in regions about the knee and other joints, the groin, the axilla and the neck, where at operation it is often difficult to discern the normal relations of the various structures. Operations on the blood vessels and nerves are rendered especially difficult.

The properties of fat vary somewhat according to the location of the fat, and while at the parts exposed to pressure and contact it may be coarse and granular, at the more protected sites and in the abdomen it is soft, friable and easily torn, and the blood vessels being easily lacerated hemorrhage readily results. The intimate blood supply of fat is poor and fatty tissue not only heals slowly but also offers poor resistance to bacterial infection.

The obese patient is a poor subject for anesthesia and the proper choice of the anesthetic is important. With ether anesthesia there is often venous stasis, pulmonary congestion, cyanosis and vomiting. Chloroform should not be used in the presence of infection, owing to its tendency to cause fatty degeneration particularly of the liver. Local anesthesia is less satisfactory in the obese than in the lean patient and the infiltration alone of fatty tissue tends to produce necrosis and may retard wound healing. The preliminary use of morphin or similar narcotic is a great aid when local or ether anesthesia are employed.

The technical difficulties at operation on account of the increase of fat are at times very great. As a rule the incision must be longer and the wound deeper than customary. There is often a capillary hemorrhage which is annoying, and on account of the friability of the fat hemorrhage from large vessels is sometimes difficult to control. Serious secondary hemorrhage from vessels in the mesentery or omentum is not uncommon. Owing to the increased length and depth of the wound a proper selection of instruments should be made to meet all the requirements of the operation. The time of the operation is prolonged and the element of shock is thereby increased. The abdominal organs are surrounded by fat, the intra-abdominal fat is increased and so also is the intra-abdominal pressure. Exploration of the abdominal cavity is rendered difficult, the intestines, stomach or omentum tend to prolapse through the wound and may with difficulty be returned to the abdominal cavity. It is sometimes necessary to remove masses of

thickened omentum to permit closure of the abdominal wound.

Surgical wounds in the obese require special handling. The incision through the fat should be clean cut and long enough to permit of easy inspection and manipulation. Hemostasis should be complete. The ligature material should be as fine as practicable, readily absorbable, non-irritating, and large knots should be avoided. Trauma of fat caused by forceps, by retractors or otherwise should be avoided, not only because healing is thereby retarded but also to lessen the danger of fat embolism. In the closure of the wound it is important to eliminate dead spaces. Buried sutures are not well tolerated in fatty tissue and frequently invite trouble. When the surfaces of the wound cannot be held in approximation by external pressure and the use of adhesive tape, it is better to employ stay sutures or mattress sutures of silkworm gut, being careful in their application to avoid pressure necrosis and infection. Since wounds of fatty tissue heal slowly and tend to discharge fluid, it is well to provide for drainage either through the line of incision or through a supplementary opening. When specially indicated, a small roll of rubber tissue may be used to prevent the drainage opening from closing. The wound should be given sufficient and proper rest to allow adequate healing.

In addition to the complications that occur in the usual type of case the fat patient is subject to complications that are due to the obesity itself. Post-operative pulmonary conditions following the administration of ether, cardiac failure, kidney disturbances, secondary hemorrhage and shock are complications that may occur immediately after the operation. Fat embolism is apt to occur in the obese and follows injuries, manipulations and operations on the bones and joints and when fatty tissue is roughly handled. The fat embolism may affect the pulmonary capillaries, the heart, the brain or the kidneys. Small infarctions of the lungs may cause but slight symptoms, but when the pulmonary circulation affects the heart the resulting dyspnea may be pronounced and even fatal. Fat necrosis may result from cold, as in the prolonged use of the ice-bag, from the use of chemical irritants such as carbolic acid and from injuries to and acute inflammation of the pancreas. The proneness to imperfect wound healing is frequently the cause of post-operative ventral hernia. The increase of intra-abdominal pressure and the overfilling, as it were, of the abdominal cavity with excessive deposits of fat help to explain the frequent occurrence of umbilical, epigastric and other forms of hernia as special surgical complications.

Based upon clinical experience and observa-

tion in the surgical treatment of obese patients the following summary is warranted:

SUMMARY

The surgical risk in obese patients is greatly increased, due to the frequent occurrence of degenerative changes in the heart, the liver and the kidneys, and also to the mechanical embarrassment of vital functions resulting from the great increase in the deposits of fat. The difficulties attending local as well as general anesthesia are often greatly increased. The technical difficulties at operation are increased, larger surgical wounds are required, abdominal explorations and procedures are more difficult, and require a special surgical armamentarium, the time of the operation is prolonged, and the element of post-operative shock is apt to be more pronounced. Adipose tissue reacts slowly to irritation, the resistance to bacterial infection is poor, surgical wounds heal slowly and have a tendency to discharge a watery fluid mixed with oil and fat globules, and on this account prolonged rest is required to insure complete wound healing. Added to the ordinary complications following operations, is the danger of fat embolism and the greater tendency to the occurrence of acquired as well as post-operative hernia. The corpulent individual is subject to the occurrence of the same classes of surgical diseases as are other types of patients, and a plea is made that a greater interest be shown in surgical diseases affecting the obese with the view to proper operative treatment. With careful attention to diagnosis, and with proper care and treatment before operation, the surgical problem may often be simplified and the dangers attending operation decreased.

229 Metropolitan Bldg.

EPIDERMOMYCOSIS

WILLIAM FRICK, M.D.

KANSAS CITY, MO.

It has been known for many years that certain skin diseases were due to vegetable parasites. In 1839 Schoenlein discovered the vegetable parasite which causes favus. The trichophyton fungus was discovered about the year 1844, and for a long time was considered the sole cause of ring-worm. Later, Sabouraud found there were several different fungi capable of producing ring-worm. He found a small spored fungus which he called microsporon audouini and a large spored fungus which is the trichophyton fungus. This fungus he divided into several varieties with their special characteristics.

The microsporon is mainly responsible for the ordinary ring-worm of the scalp occurring in epidemic form in children. Culturally there are two varieties of the microsporon; the microsporon lanosum and the microsporon audouini. Clinically there seems to be no difference. They attack the hairs and hair follicles as well as the cutaneous tissue between. The hairs break off at or beneath the surface of the scalp causing the well-known bald spots on the scalp. The trichophyton fungus also sometimes affects the hairs of the scalp and also the beard. It does not limit its growth to these parts but is found in almost all parts of the body especially the crural region, axillae, between the toes and the nails. For some time the disease known to older writers as eczema marginatum, has been known to be caused by a variety of the trichophyton.

In recent years another fungus known as the epidermophyton has been shown to be a causative agent in this disease. The epidermophyton differs culturally and morphologically from the others, but at this stage of development it seems impossible to distinguish clinically between them. Hence the title I have given this short paper accepting the suggestions of White and Greenwood in their article read before the section on Dermatology and Syphilology of the American Medical Association last year, and published in the Journal of the A. M. A. of October 22nd, 1921.

This paper will not deal with the cultural side of the disease as time will not permit and the clinical side is of greater importance to the physician trying to effect a cure. No matter which of these organisms are the cause of the disease the treatment will be the same. White and Greenwood feel justified in dividing the disease clinically into six varieties: (1) Macular, (2) Vesicular, (3) Macerated, (4) Hyperkeratotic, (5) Papular, (6) Nail infection.

The first and most frequent of these is found most often on the inner, upper aspect of the thighs extending down to about the lower border of the scrotum, sometimes back along the perineum to the anal fold and also to the inguinal region. When it has existed a long time it may extend up over the abdomen. Frequently it exists at the same time in the axillae and seems to thrive there as well as on the thighs. It is called macular and is supposed to begin with small macules pin-head size and brick red in color. When the case comes to the physician usually these small macules have coalesced and formed a solid patch of inflamed skin with probably some desquamation; the border is quite sharply marginate—cuts off sharply at the border and the border line is slightly elevated above the normal skin. The

itching varies greatly. Sometimes it is inconsequential and again it may be quite distressing in its severity.

The vesicular type is found on the hands and feet. Generally on the lateral aspect of the fingers and toes but also extending to the palms and plantar surfaces. These vesicles are situated rather deep in the skin and the itching is usually quite troublesome. This type as well as the macerated type is favored in its development by warm weather. The heat and sweaty skin forms a favorable field for development.

The macerated type is found especially between the toes and becomes very annoying on account of the itching and macerating skin. The skin is moist, swollen and white. The maceration and peeling of the skin leaves it tender beneath. The process may extend to the soles or the dorsal surface of the feet.

The hyperkeratotic type naturally is inclined to affect the palms and soles where the horny tissue is found in greatest abundance. It presents great difficulty in making an absolutely positive diagnosis, which can only be done by finding the organism concerned in the case. It is not easy to get a culture. Many failures may be made in any case before finally securing a growth of the organism. It is still more difficult to get a microscopic view of the fungus in the scrapings.

One thing is clinically noticeable in all types—that is the marginate border of the lesion.

I know nothing from personal experience of the papular type as I have never knowingly seen a case of the kind. It is said to be the rarest type of the disease. The pruritus is said to be fierce.

Infection of the nails was formerly considered a rare type of the disease. Milton H. Foster in examining aliens at Ellis Island said that about one in five thousand of them had a fungus nail infection. Robert S. Hodges, chemist at the University of Alabama, had his attention directed to this disease by its presence in his own nails. He made a comprehensive study of the disease and concluded that in his locality about one in five hundred people had this disease of the nails.

The nail infection seems to begin at the distal extremity. The nail becomes brittle and breaks. There is an accumulation of scaly material beneath the nail at its free extremity. This contains the fungus and loosens the nail from the nail bed pushing the nail up from its attachment to the nail bed. The nail fold may or may not be involved. Co-existent with the nail infection there may also be infection of other parts of hands or feet or of the inguinal region, but as a rule the nail infection is not accompanied by the other types.

The cure of the nail infection is the most difficult of all these mycotic diseases. It is quite common to find these nails continue in the diseased state for many years. Hodges reported that his own case continued for thirty-five years in spite of his efforts to destroy the fungus and bring about a cure. The other types described are also refractory to treatment. One of the most valued remedies used in this country for all these types is Whitfield's ointment. (This is an ointment composed of benzoic acid, 4 parts; salicylic acid, 2 parts; and petrolatum, 30 parts). Even this must be used persistently for a long period to eradicate the fungus.

In the case of the nails or plantar surfaces it may be necessary to use caustic potash or something else to soften the horny substances to give the remedy an opportunity to act. There are other remedies also recommended. Ruggles uses an ointment of tar as a main medicinal substance. (Zinc oxide, 1½ drams; tar ointment, 3 drams; phenol, 15 minims; ung. aquaerosae, 4½ drams.) He also recommends that this be followed up by tincture of iodine and spirits of camphor. (Tincture of iodine 1 dram, in spirits of camphor 1 ounce.) In France chrysarobin seems a favorite remedy. The matter of clothing must be given attention also. No woolen articles of clothing should be worn. The skin should be kept dry and aerated. No gloves should be worn where the trouble is on the hands or fingers. No bandaging, or as little as possible, should be done.

1010 Rialto Bldg.

RECENT ADVANCES IN THE DIETETIC TREATMENT OF DIABETES MELLITUS*

F. NEUHOFF, M.D.

ST. LOUIS

In his "Practice of Medicine," published in 1911, Osler refers to the dietetic treatment of diabetes mellitus in the following words: "Our injunctions today are those of Sydenham: 'Let the patient eat food of easy digestion, such as veal, mutton and the like, and abstain from all sorts of fruit and garden stuff.'" As Sydenham lived in the seventeenth century, it would appear that the dietetic treatment of diabetes had remained practically unchanged for a period of almost three hundred years. It was long known that carbohydrates in the diet of a diabetic caused glycosuria, and that complete abstinence from carbohydrates precipitated acidosis. But to discover the proper course of safety lying between these two real

dangers baffled for a long time the best efforts of medical scientists. Diet cures, such as the rice cure, the oatmeal cure, the milk cure, empirically devised by eminent authorities and blindly adopted by the general practitioner, strange to say, now and then proved beneficial. But in the vast majority of instances they failed, as was to be expected, for their composition was not based on deductions from accurate scientific data.

A definite advance in the treatment of diabetes was scored when Allen in 1914 published his experiments on partially depauperatized animals, and his method of treating diabetes based thereon. It is popularly called Allen's starvation cure. Allen's directions are, first, to starve the patient until his urine is sugar free. Small, slowly increasing amounts of proteids and carbohydrates are then fed until sugar reappears in the urine. The amounts of the food ingredients mentioned are then kept just below that point. Fats are added to the diet sparingly and are always kept low for fear of causing acidosis. It is necessary to keep the patient's weight always below what it was before treatment was commenced. The characteristics of this diet are a relatively high proteid, a low carbohydrate and a low fat constituent. After the patient has been kept sugar free for some time, it may be possible to increase the amount of carbohydrate in the diet, as sugar tolerance sometimes increases as a result of dietetic treatment.

In the *Archives of Internal Medicine*, of December 20, 1920, Newburgh and Marsh criticize the dietetic treatment of diabetes evolved from the teachings of Allen. Believing the fear of high fat constituent of the diet to be groundless, they put their patients on a diet containing a large amount of fat, usually about 170 gm. a day. They cut down the proteid in the diet to a point where it will just cover the nitrogen waste, which they find to be .66 gm. a day for each kg. of the body weight of the patient. The carbohydrate they keep at a point between 14 to 30 gm. per day. Not only did this diet fail to produce acidosis, but cleared it up when present. It kept the patients in nitrogen equilibrium and saved them from the inanition so often encountered during the Allen treatment.

In the *Archives of Internal Medicine*, August 2, 1922, Woodyatt proposes the following diet adjustment in diabetes. He places the proteid at 1 gm. a day for each kg. of body weight of the patient. This amount is not as low as the proteid factor in the Newburgh and Marsh diet, but lower than that of the Allen diet. A low proteid factor is supposed to be an advantage as a high proteid factor

*Read before the St. Louis Medical Society, December 5, 1922.

lowers the patient's sugar tolerance. The next step is to determine the patient's glucose tolerance. This is done by deducting the glucose contained in the 24-hour urine of the patient from the total amount of glucose formed in the metabolism from the food intake during 24 hours. In this calculation the carbohydrates are assumed to yield 100 percent glucose, the proteids 58 per cent, and the fats 10 per cent of glucose. The amount of fat in the diet is made equal to the amount which the patient's glucose tolerance will enable him to metabolize without incurring acidosis. Woodyatt's experience has corroborated the conclusions arrived at by chemists, that acidosis can be avoided by keeping the ratio between the higher fatty acids formed in the metabolism from a certain food mixture and the glucose formed in the metabolism from the same mixture at 1.50. The neutral fats are supposed to yield 90 per cent. fatty acids, and the proteid 42 per cent. These facts are cleverly embodied in several algebraic equations by means of which the appropriate diet can at once be determined for any patient provided we know his weight and his glucose tolerance.

Let G stand for total glucose tolerance, F for the number of gm. of fat, C for gm. of carbohydrate, P for gm. of proteid, and FA for gm. of fatty acids.

$$\text{Then } G = C + .58P + .1F,$$

$$FA = .42P + .9F,$$

$$FA$$

must equal 1.50 to avoid
G acidosis.

Substituting the equivalents for G and FA in this fraction, we get

$$\frac{FA}{G} = \frac{.42P + .9F}{C + .58P + .1F} = 1.50 \text{ or } \frac{3}{2}$$

$$\text{Simplify and we get } F = 2C + .54P \text{ or } F = \frac{P}{2}$$

$$2C + \frac{P}{2}$$

Let us now calculate the diet for a man weighing 50 kg. whose glucose tolerance we have found to be 100 gm. Substitute 50 for

$$P \text{ in } F = 2C + \frac{P}{2} \text{ and we get } F = 2C + \frac{50}{2}$$

or $F = 2C + 25$. We have said that $G = 100$ which is the sum total of glucose from all sources which this man can metabolize. The glucose yielded from the 50 gm. of proteid which we have decided to give the patient, as

he weighs 50 kg., will amount to $50 \times .58$, or 29 gm. Deduct this from the total 100 gm. glucose tolerance, we get 100—29, or 71. This 71 gm. must be distributed between C and F. Therefore $C + .1F = 71$. But $F = 2C + 25$, therefore $71 - 10C = 2C + 25$, or $C = 57$. Substitute 57 for C in $F = 2C + 25$, then $F = 139$. P we have put at 50. So the patient's diet will be 139 gm. fat, 50 gm. proteid, and 57 gm. carbohydrate.

In the *Jour. A. M. A.* of June 17, 1922, Wilder of Rochester describes what he calls a low maintenance diet for diabetics. This diet is designed to lower the patient's metabolic rate by feeding him a number of calories equal to the basal calorie requirement of a normal person of the same height, weight, age, and sex as the patient, determined by Du Bois' tables. The proteid of this diet is put at .66 gm. a day for each kg. of weight of the patient. The amounts of fat and carbohydrate of the diet are fixed so low that added to the amount of proteid allowed they will just cover what would be the patient's basal calorie requirement if he were a normal individual. The ratio between the amounts of carbohydrate and of fat is determined by the equation $F = 4C + 1.4P$. This formula calls for a smaller quota of carbohydrate, and a greater quota of fat than is provided for by the Woodyatt equation. But Wilder claims that the ratio expressed in this equation will avoid acidosis.

Having briefly outlined the several schemes lately brought forward to solve the vexatious problem of a suitable diabetic diet, we will attempt an evaluation of their relative merits based on clinical experience. Up to a short time ago, the Allen diet was our first choice and it has served us well in the treatment of many patients. But in the light of knowledge gained from dietetic schemes recently advocated, we now recommend the Allen treatment only under exceptional circumstances and in a modified form. We would starve a patient only in an aggravated form of diabetes when nothing else will improve him, or else when it is necessary to get him sugar free in the shortest possible time, as for example when gangrene is present. We would never starve anyone for more than two days in succession. On the resumption of feeding we would put the patient on .66 gm. of proteid for each kg. of body weight. Fat and carbohydrate we would give in the proportions indicated by Woodyatt's equation and in small increasing amounts, until the patient's tolerance is reached.

The Newburgh and Marsh diet scheme we do not deem sufficiently elastic to be readily adjusted to varying types of the disease.

The Wilder diet, as we said before, pro-

vides only sufficient calories to cover the patient's basal calorie requirement. We have thus far been compelled to resort to such extreme measures of restriction only in two patients. Both were complete diabetics with no glucose tolerance. One patient, a woman, also suffering from tuberculosis, refused to abide by the treatment. The other patient, a boy of 19 years, has been under the low calorie diet for six weeks. He gets the calories of his diet from .66 gm. of protein for each kg. of body weight, and from fats and carbohydrates in the proportion indicated by the

P

$$\text{equation } F=2C + \frac{P}{2} \text{. After six weeks of}$$

treatment the patient has had but a slight loss in weight. The acidosis from which he was suffering when entering the hospital has all but disappeared. He states that he feels perfectly well. On admission he excreted 148 gm. of sugar daily. Now he excretes 42 gm. which is 10 gm. less than the amount of glucose yielded in the metabolism, by his total food intake. In other words, he appears to be developing a slight glucose tolerance.

In all our other cases we have thus far gotten along with the Woodyatt diet. None of these, however, were of the severest type. As a rule, in four days they have become sugar free, and soon afterwards went into nitrogen equilibrium. One patient, a girl of 11 years, has gained 10 pounds during six months of treatment. Another patient, an old man suffering also from arterial sclerosis and gangrene was referred to us by Dr. Dean. The Woodyatt diet soon rendered him sugar and acetone free, and his amputation wound is healing nicely.

Our experience thus far has been limited, but we do not hesitate to recommend the Woodyatt diet adjustment as efficient treatment in all but the severest forms of diabetes. In cases of complete diabetes or in those who have a very small glucose tolerance, we would limit the food intake to an amount equal to what would be the patient's basal calorie requirement if he were well, as is suggested by Wilder. If this brought no results, we might apply starvation of short duration. However, when we feed, we would feed a diet which contains either 1 gm. or .66 gm. protein daily for each kg. of the patient's body weight and carbohydrate and fat apportioned according to the

$$\text{Woodyatt formula of } F=2C + \frac{P}{2}$$

TOXIC THYROID

M. P. OVERHOLSER, M.D.

HARRISONVILLE, MO.

The normally developed thyroid gland is a bi-lobed organ the two portions of which are separated by a narrow bridge called the isthmus, which lies normally near the second ring of the trachea. The lobes are of nearly the same size under ordinary circumstances, although they may vary a little within normal limits. The thyroid body is sometimes accompanied by accessory masses of similar tissue which may be connected with it or may be behind the trachea, or beneath the tongue or elsewhere about the middle or anterior portions. These accessory masses of thyroid tissue when enlarged may be mistaken for enlarged lymphatic glands.

Enlargements of the thyroid gland may be due to abscess, adenoma, sarcoma, carcinoma, fibro-cystic growths, or simple hypertrophy. Enlargement of the thyroid gland does not always mean more gland activity or more thyroid secretion. Simple hyperplasia giving rise to marked enlargement of the thyroid gland frequently occurs without physiological disturbance. On the other hand marked physiological disturbance due to thyroid intoxication frequently occurs without any noticeable hypertrophy of the gland. Thus goiter may exist without hyperthyroidism and hyperthyroidism may exist without goiter. The subject of our paper is toxic thyroid with or without visible enlargement in which there is a hyperfunction of the gland with an overproduction of the thyroid hormone.

Exophthalmic goiter has been recognized as a distinct disease for nearly a century; however, it has only been within the last few years that the medical profession has extensively discovered the border line or ill-defined cases, due to thyroid intoxication without visible enlargement of the gland.

The well marked cases of exophthalmic goiter are characterized by five primary symptoms: enlargement of the thyroid gland, increased frequency of the pulse, protrusion or prominence of the eye-balls, fine muscular tremor, and general nervousness. Other symptoms which may be found are excessive perspiration, sensations of heat, dyspnea, respiratory arrhythmia, diarrhoea, restlessness, sleeplessness, hysterical symptoms, irritability, mental disturbance, carotid pulsation, loss of weight and strength, cutaneous pigmentation, urticaria, pruritus, and sometimes hurried speech.

This disease may occur at almost any age, but the usual period is between the ages of 15 and 50 years, and within this limit a greater number of cases develop between the ages of

20 and 30 years than any other corresponding period. Women are much more liable to the disease than men. It is variously estimated by different authors as being from two to ten times as frequent in women as in men. Out of a total of 400 cases, 43 were males and 357 females.

Some investigators tell us that exophthalmic goiter is not often directly inherited; however, there is a sufficiently large number of cases on record to show that in some families there is a distinct tendency to the disease. Dock says the family history is unimportant. Tyson takes a middle ground stating that heredity is a rare factor but that its influence cannot be doubted. Curtin of Philadelphia says: "I am convinced after a study of many cases that the goiter districts of Germany, France, and Switzerland are districts in which hereditary Graves disease is a prominent factor." He also states that it is his opinion that in the future we will have goiter districts in the United States the same as exist in Europe, as heredity, altitude, and other ill-defined factors are at work in certain localities and all that is now required to make a goiter district is for the people in those localities to remain at home and breed in-and-in for a few generations.

Romberg records a case in which one sister, the father, two paternal aunts, and the paternal grandmother of the patient all suffered from the disease. In some instances it has been found that one member of the family may suffer from exophthalmic goiter while another member of the same family is myxoedematous. MacKenzie mentions a family in which the mother was hysterical and eight out of ten of her children suffered from varying degrees of exophthalmic goiter. It has been observed that the disease often appears in families which inherit a tendency to suffer from various diseases of the nervous system, such as epilepsy, hysteria, chorea, and insanity. Marie mentions one case in which the father suffered from paralysis agitans, a maternal aunt from insanity, two children of a sister from epilepsy, and another in which the father was epileptic and a brother neurasthenic.

Only a few instances of the occurrence of exophthalmic goiter in animals have been recorded. Roder has reported one case in a cow in which the enlargement of the thyroid, palpitation, with arterial pulsation and well marked double exophthalmia had been present for four years. Bashan of Russia mentions one instance of a four-year-old horse that developed the symptoms after a long gallop. Cadiot reports a case of a horse which suffered with palpitation, goiter, weakness and emaciation.

In many cases no directly exciting causes can be discovered but the opinion prevails

quite extensively that infection from various sources, the teeth, throat, tonsils, etc., may be an important factor in its causation. In quite a large number of cases the exciting cause has been found to be due either to some sudden mental or physical shock, or else long continued anxiety, or grief, sufficient to produce a powerful emotional disturbance. Thus a common exciting cause is said to be fright, which may or may not be accompanied by physical injury. Worry, fatigue, excitement, and depressing emotions, are recognized as factors in producing the disease, more readily, perhaps, in those with hereditary tendency.

The appearance of a person suffering from a fully developed and pronounced case of goiter is most striking. The prominent eyeballs, with the white sclerotics exposed, give a startled expression to the face which, combined with the enlarged thyroid gland, the general unrest of the patient, the rapid pulse, the tremor of hands, form a clinical picture which can be easily diagnosed. While this is the picture of a well marked case of toxic goiter, we must remember that this disease may exist with some of these characteristic symptoms lacking. Of 283 cases of Graves disease reported by a number of physicians, 29 of this number showed no enlargement of the thyroid gland. In 50 cases examined by Swan of Rochester, N. Y., 11 showed no muscular tremor. In 15 of these cases muscular tremor was in the hands. In one case it involved one hand only. In another case the tremor was in the tongue. In one case in the hands and lips. In two cases in the hands, lips and tongue, and in one case there was general muscular tremor.

The most constant symptom in these cases is tachycardia, rapid pulse. Flint says that increased frequency of the heart's action is the only one of the cardinal symptoms which is never lacking. Krecke considers tachycardia a pathognomonic symptom, and Baker says to always suspect a possibility of hyperthyroidism when a bed patient has a pulse rate constantly above 80 with no evidences of any other disease. L. H. Mettler, over 15 years ago called attention to the importance of the recognition of the so-called "laryngeal" forms of toxic goiter, that is the atypical, obscure, ill-defined, masked, incipient, and border line cases.

It is very interesting to note the different interpretations of the symptoms of these atypical cases by careful observers of the past. Plummer says that mistakes in diagnosis are frequently made by attributing the tremor, nervousness, tachycardia, etc., of neurasthenia, cardiovascular and renal disease to the thyroid. Directly opposite to this view, Swan says, "I am of the opinion that a great many neurasthenics are due to thyroid disturbance,

and that thyroid disturbance is frequently the cause of cardiorenal disease, and further that disordered thyroid gland secretion is quite frequently the cause of chronic nephritis. In 50 cases of toxic thyroid Swan found 11 cases with albuminuria, and of these 9 had definite nephritis. One had hemorrhagic retinitis; 27 had hypertrophy of the heart, and one a fairly well marked arteriosclerosis. Elliott says "the frequency of the occurrence of morbid overactivity of the thyroid gland is probably much greater than is generally believed. Many cases of thyroid intoxication have been diagnosed neurasthenia, hysteria, functional heart disease, anemia, etc." Kahane emphasizes this same statement by saying, "Far too often conditions for which excessive functioning of the thyroid is responsible are mistakenly labeled hysteria, neurosis, neurasthenia, functional disease of the heart, and neuro-circulatory asthenia."

Kahane says further: "Few think of examining the thyroid when a patient complains of accelerated heart action after comparatively slight exertion, subsiding to normal in repose, loss of weight, tremor, tendency to sweat, diarrhea, restlessness, and irritability. Any one of these symptoms should suggest the possibility of thyroid mischief." He again says: "If a patient is aware of the rapid beating of the heart, either in the form of general throbbing of the arteries, or as palpitation of the heart, suspicion should be aroused, and when combined with tremor and even with but slight protruion of the eye balls, it may be accepted as evidence of hyperthyroidism."

In the increased glandular activity of the thyroid it is very reasonable to suppose that we may have all grades of thyroid intoxication depending upon the degree of over-production of the thyroid secretion. Thus very gradually we have been led to observe that the cardinal symptoms of well marked cases of exophthalmic goiter are not necessary to prove the existence of the milder forms of thyroid intoxication, or even rather severe forms of thyroid poisoning with but few of the cardinal symptoms present.

Are we as physicians in our daily professional work overlooking these atypical cases of hyperthyroidism, because they do not present the characteristic symptoms of exophthalmic goiter? If so, how can we diagnose these cases? What is the minimum clinical symptomatology needed to make a correct diagnosis in these atypical, ill-defined, cases of toxic goiter? Do we not frequently find in many of the so-called neurasthenics, tachycardia, tremor, exhaustion, and other symptoms similar to those observed in hyperthyroidism? Romberg in a recent discussion of cardiac neurosis made the statement that F. Muller told him that the majority of so-called cases of

cardiac neurosis he saw were in reality mild hyperthyroidisms. We, as physicians, have all diagnosed and treated time and again cases which we looked upon as neurotic, neurasthenic, nervous prostration, hysteria, functional disease of heart, amenorrhea, anemia, persistent neuralgic pains, when in reality these conditions and symptoms were due to hyperthyroidism. Is it not a fact we must all acknowledge that in many of these ailments such as neurasthenia, various neurotic conditions, hysteria, cardiac neurosis, and some cases of amenorrhea and anemia, the cause of these conditions has been obscure to us and our treatment very frequently unsatisfactory? Recent investigations have proven that a good per cent. of these cases are due to thyroid intoxication and respond to treatment directed to the thyroid gland.

In the diagnosis of these obscure, ill-defined, atypical, "larvated," incipient, and milder forms of thyroid intoxication the basal metabolism test is one of the most valuable means of ascertaining whether or not the case is one of thyroxin poisoning, and measures fairly accurately the degree of intoxication. However, this instrument is somewhat expensive and by careful observation the general practitioner can do good work in the diagnosis and treatment of most of these cases without a metabolism test.

Normally the essential function of the thyroid gland is the elaboration and delivery to the body of the hormone thyroxin which regulates the intensity of combustion within the body. So far as we know the thyroid gland has no other function. We are told that from 12 to 14 milligrams of active thyroxin must be present in the body to maintain the basal metabolism at a normal level. With this normal amount of thyroxin the basal metabolism is maintained at a normal rate; however, if the amount of thyroxin is above normal the basal metabolism increases.

The intensity of the oxidizing processes of the tissue cells has a definite relation to the amount of heat produced, and the amount of body heat produced has a definite relation to the amount of oxygen consumed. The greater the amount of heat produced the greater the consumption of oxygen. On account of the increased oxidation processes of the system due to the excessive amount of thyroxin in the system many of these cases have hot flushes, and excessive perspiration.

In taking the basal metabolism the patient must be at rest when the oxidizing process of the system is at its lowest ebb. An apparatus is then required which measures with extreme accuracy and great rapidity the amount of oxygen consumed by the patient in a given time. As the product of the thyroid gland is to regu-

late the intensity of the oxidizing process within the body, it has been found that when the thyroid gland is overactive in the production of the thyroid hormone, the basal metabolism is increased as we find in toxic goiter, and when the activity of the gland is below normal the basal metabolism falls as in myxedema. In myxoedema there is a drop in the basal metabolism of from 20 per cent. to 40 per cent., and an elevation of from 20 per cent. to 40 per cent. in mild, 40 per cent. to 60 per cent. in moderate, and from 60 per cent. to 100 per cent. in severe hyperthyroidism.

Basal metabolism tests therefore measure the functional activity of the thyroid gland and give the clinician a more accurate conception of the intensity of the disease than is given by the clinical symptoms alone, and in the differential diagnosis of the border line cases this test is very valuable. In 500 cases of hyperthyroidism examined each showed an increase in the basal metabolism rate.

The treatment of these cases is medical, surgical, and X-ray and radium radiations with a combination of these various methods of treatment. Rest, both physical and mental, is an important part of the treatment. Medical treatment consisting of 5 grains of hydrobromate of quinine and 1/100 grain of arsenious acid three times a day with good doses of bromides, rest and proper diet frequently afford relief in a good percentage of cases. The surgical removal of a part of the gland is the treatment recommended by most surgeons and good results frequently follow this method of treatment. The dangers of surgical removal of part of the thyroid gland are shock, hemorrhage, postoperative hyperthyroidism, injury to the parathyroid glands and laryngeal nerves, air embolism, collapse of trachea, and infection. However, the percentage of mortality is not very high.

The advantages of the X-ray treatment are, first, that there are no fatalities; second, that there is no resultant scar as from operation; third, that the treatment does not interfere with the patient's occupation; fourth, that the treatment is painless and requires no anesthetic and causes very little inconvenience to the patient; fifth, that the danger of removal of too much of the gland is entirely eliminated, and sixth, that with the basal metabolism test as a guide we are able to regulate or control more accurately the function of this gland in the production of normal amount of thyroxin.

Knox says: "The routine treatment by drugs has proven to be merely palliative, and operative treatment has not been marked by striking successes." There is now a contention between the surgeons and radiologists as to the most effective and satisfactory treat-

ment of these cases, whether by surgical removal or radiation of the gland. Knox says: "X-rays appear to offer a chance of better results than either of the two older methods of treatment, medical or surgical. Whatever the changes be that take place in the treatment of these cases by X-ray there can be no doubt that many of these cases are restored to their normal state of health." Knox states further "there is a remarkable unanimity on the value of radiation in the diseases of the thyroid, particularly in regard to the efficacy of X-ray treatment. A great majority of observers have used X-rays exclusively with great benefit and it appears that there is hardly any need to look further afield for a more potent remedy." He states also that the massive doses do not appear to have more effect than the small dose administered at short intervals. The ultimate aim of all treatment in these cases should be to control the secretion rather than to abolish it. Proper control will result in symptomatic cure.

Mackenzie says he believes that X-ray treatment may prove to be by far the best means of treatment at our command. Case says that in exophthalmic goiter X-rays administered by the present intensive methods give results almost unbelievably good. Seeuwen dealing with a number of cases of heart trouble in the army states that deep application of X-rays to the thyroid gland are very useful especially in those cases which have hypertrophied thyroid. He says the application of X-rays is certainly one of the best methods of treatment available for exophthalmic goiter.

Dr. Florence Story says she is convinced that X-rays when properly and vigorously applied are a specific for exophthalmic goiter. Herman-Johnson state that the action of X-rays in small doses in glandular affections appears to be a regulating one. If the gland is overactive its hormone production is reduced and should the secretion be vitiated the treatment tends to restore it to its normal quality. Clinically the most definite and striking effects are obtained in cases of Graves disease. To obtain the quickest results the sittings must be given three times a week at least, comparatively small doses being used." Seymour gives 5 Holzknecht dose, distance 20 inches, filter 4 mm. aluminum and repeats treatment in three or four weeks. Some radiologists advocate rather intensive doses given every three or four weeks, other good authorities advise milder doses two or three times a week. Either plan of treatment seems to give good results. Further work along this line will prove in the future the best method of radiation treatment.

I will not take time to report cases treated in my own experience; however, I will state

that I have had very satisfactory results in the treatment of quite a large number of these cases by moderate X-ray doses frequently given.

SOME LESSONS FROM SEVEN PROSTATECTOMIES IN MY OWN CLINIC FROM AUGUST, 1921, TO JULY, 1922*

W. F. GRINSTEAD, M.D.

CAIRO, ILL.

My memory readily takes me back to the days when, as a general practitioner, I was frequently consulted by men who had passed 50 and who were distressed by frequent, painful micturition. Sometimes pus and blood showed in the urine.

I gave them my best prescription. It helped them a little, gave temporary relief, but they soon returned. Then I consulted my library on therapeutics, made another prescription with the same results. Finally I irrigated the bladder two or three times a week. This helped but didn't cure. Residual urine began to accumulate. I catheterized them. Later I taught them to catheterize themselves. Some of them continued to live catheter life for years. Others became infected, got purulent cystitis or pyelonephritis or sepsis and the pastor, in his funeral oration, was sometimes good enough to say "all was done that could be done." I was humiliated. I had failed to "deliver the goods." I worried over it. I asked myself the question: What is a doctor for, if he can't relieve his patients?

In 1893 I attended the annual meeting of the American Medical Association at Milwaukee. At that meeting I got an impressive lesson on the subject of Hypertrophy of the Prostate Gland. It was given by that stalwart master, in his day, Hunter McGuire, of Richmond, Va., who had been Surgeon-in-Chief in the Army of the Southern Confederacy. Before the section on surgery he brought in an old white haired chap to illustrate his method of relieving prostatics. He had established a supra-pubic fistula in which his patient wore a peg, like a cork in a bottle. When he desired to urinate he pulled out the peg. On this occasion Dr. McGuire had the old chap step upon the platform with him, stripped his abdomen, withdrew the peg and about a half pint of urine streamed out into a tray held by the doctor. You will agree with me that this was a spectacular demonstration but it didn't seem eminently practical. I never saw any body else employ the method, but it showed the desperate straits into which these patients and the medical profession were driven.

In 1902 the late John B. Murphy wrote an article in the Journal of the American Medical Association, followed by two more in the same Journal in 1904, in which he set forth, in his lucid, impressive style, his views and operative technique on the subject of Hypertrophy of the Prostate Gland.

As if only yesterday do I remember his figure of his inverted Y incision through which he approached the gland by the perineal route. Likewise do I vividly recall his declaration that this painful disability and invalidism of prostatic hypertrophy came upon men at a time of life when they had prepared to reap the fruits of the labor of their earlier and more vigorous manhood, which had been devoted to preparation for the harvest of mature life and the comforts of old age.

In this year of 1904, while Murphy's articles were fresh in my mind, I did my first prostatectomy according to his technique. The result was unsatisfactory. The gland was large, firm and tough and insisted in coming away in one mass. The urethra suffered much trauma. Rank infection followed and, in a few weeks, my patient died from sepsis. In another case I button-holed the rectum and had a tedious job closing it by suture.

In 1908 that master and champion of perineal prostatectomy, Hugh Young of Baltimore, wrote his classic chapter of about one hundred pages on the prostate in Keen's System of Surgery. I read and re-read his technique on prostatectomy. He taught me how to remove the gland by morcellement.

I saw him turn the trick in his own clinic. It looked so easy and thorough that I felt sure it was the method of choice. Wizard that he is in this work, I heard him admit that he had button-holed the rectum; but, he said, "I don't do it now." I saw Charley Mayo, another wizard, do perineal prostatectomies and heard him say that it was not necessary to search out and remove every fragment of the gland.

I continued to pursue the perineal route with much confidence and with satisfactory results. I saw John Wyeth operate by the supra-pubic route in the New York Polyclinic. His patient had a profuse hemorrhage and was profoundly shocked. This observation served to increase my confidence in the perineal method.

In 1914 I removed an enormous stone, weighing $1\frac{1}{2}$ pounds, from the bladder of a patient 57 years old. In 1919, five years later, his vesical symptoms returned and the X-ray showed two smaller stones had formed. The first stone was necessarily removed suprapubic on account of its size. Patient did so well that we employed the same method for the second operation and after the stones were removed

*Read at the meeting of the Southeast Missouri Medical Association, Fornfelt, October 17, 1922.

we observed a hypertrophic prostate protruding high into the bladder. One lobe was undoubtedly obstructing the urethra. We shelled out both lobes and patient made a rapid and permanent recovery and is well to this day.

This was the easiest prostatectomy I had ever done and I resolved to try it again. Now the suprapubic route is the method of choice in my clinic. The drainage is excellent and since the two-stage method of doing it has been established I feel certain that many poor surgical risks can be safely operated who have heretofore been regarded as hazardous or altogether inoperable.

The seven cases comprising the subject of this paper afford unquestionable evidence of this conclusion. They were all operated by the suprapubic method. Four of them were operated in one stage and three by the two-stage method. The average age of the four was 64½ years. That of the three was 74½. This shows approximately ten years difference in the ages of the one-stage and the two-stage patients.

The average stay in hospital of the one-stage cases was two and three-fourths weeks. The two-stage cases averaged six weeks in hospital. It is only fair to state, however, that the latter cases were advised to leave hospital earlier but they didn't want to leave their nurse. These old chaps think more of their nurse than they do of their doctor.

The second stage cases had all been driven to the catheter and the catheter finally failed to give relief. They had all reached the stage in which neither they nor their physicians could introduce a flexible catheter. One of them had complete retention for forty-eight hours and was brought in on a cot. His bladder was filled with urine and blood and extended to his navel. We did a suprapubic cystotomy at once under local anesthesia, irrigated and placed a drain. We feared suppression and uremia from back pressure. For a day or two the quantity was scant but gradually increased and we re-opened the wound in a week and removed his prostate. Another of the second stage cases, age 76, had nearly the same quantity of bloody urine but his physician had given partial relief by a metal catheter. The latter finally failed by filling with blood clot at each insertion. The patient was in such agony that hypodermics of morphia were required. The third of these cases urinated at frequent intervals but carried a pint of residual urine.

They are all comfortable now.

A brief statement of the technique employed in one of our oldest patients and poorest surgical risks will serve to illustrate them all. For about a week his bladder was irrigated daily with nitrate of silver 1 to 12,000. We

then took him to the operating room, after shaving the pubes the preceding evening. A fresh solution of novocain with adrenalin was injected freely into the suprapubic area by hypodermic needles. A vertical incision was then made down to the bladder wall; then the latter was injected with our solution and opened transversely. This liberated the half pint or more of sterile water that had been injected after patient had been placed on the operating table.

The finger was introduced and the bladder explored. Two stones were removed which were detected hidden behind the prostate. The gland was outlined and the prostatic urethra located. To obtund sensibility and prevent hemorrhage, we injected the mucous membrane covering the gland with our novocain-adrenalin solution.

This was accomplished by screwing a shank onto a hypodermic needle at one end and the syringe at the other like our throat specialists employ for local anesthesia in tonsillectomy. You would be surprised to observe how little pain is felt by the patient in this procedure. Now, with an Allen's prostatic knife, an incision is made through the mucous membrane covering the prostate on each side of the prostatic urethral orifice to admit the finger tip for enucleation which we are ready to begin. Our general anesthetist is now directed to start gas and oxygen anesthesia. In a few minutes the gland is shelled out. Our local anesthesia will serve us while we close our incision and place our drain.

In the two-stage operation we do nothing in the first stage but open and explore the bladder, place a drain and close. About a week later we re-open the wound and remove the gland. During this week daily irrigations are made through our drainage tube. In my first few cases I irrigated by a flexible catheter through the urethra, the fluid emerging through the suprapubic drain, but I found that the catheter was painful and started hemorrhage from the prostatic bed. I abandoned it and irrigated through the drainage tube. This tube was removed on fifth day but irrigation continued through operation wound five days longer.

HOSPITAL STANDARDIZATION FROM THE STANDPOINT OF A HOSPITAL SUPERINTENDENT*

LOUIS H. BURLINGHAM, M.D.

Superintendent of Barnes Hospital; Administrator, St. Louis Children's Hospital

ST. LOUIS

In considering the attitude of a hospital superintendent to the program of standardiza-

*Read at the Sectional Meeting of the American College of Surgeons, Quincy, Illinois, December 1, 1922.

tion of the American College of Surgeons, let us take first the relation of the superintendent to the hospital as a whole. By hospital superintendent I have in mind the executive head of a hospital, whether man or woman, member of a religious order, nurse, layman, or doctor. I believe that the word that best describes his function is that of co-ordination. In some respects, certainly in his own specialty, he may need to be a leader, but if the hospital has as heads of all departments persons of the proper caliber, his chief work is to so co-ordinate their activities that the result is an efficient whole. I like to think of a hospital not as an organization with a single leader or a single driver, but with the heads of all departments, surgeons, physicians, obstetricians, the laboratory men, the specialists, the superintendent of nurses, the housekeeper, the dietitian, the mechanic and the superintendent, all pulling ahead harmoniously, each in his own line, doing his best and helping the others in all ways to do the best work that is possible. It is true that the trustees have the ultimate responsibility vested in them, but I cannot conceive of a board of trustees who would not prefer to have a hospital functioning in this way rather than in any other. To use a homely illustration, to think of the personnel of a hospital as a spirited team of many horses all pulling steadily ahead, rather than irregularly and in different directions, and requiring a strong hand to lead or drive them.

Attempts are being made to standardize laundry practice by the Laundry Owners' Association, the purchase of supplies has been standardized by the New York Bureau of Standards and Supplies and by Hospital Councils, the intern problem is being standardized by the American Medical Association, floors and surgical dressings by the American Hospital Association, social service by the American Association of Social Workers, and nursing by the various nursing organizations. Can there be anything more logical than the efforts of the American College of Surgeons to establish standards for the more perfect functioning of a hospital? Is there any standardization which will contribute more to the general welfare of patients than this?

You all are doubtless familiar with the minimum standards which have been in force since 1919. I have never heard a valid objection to any one of the requirements, though there may have been questions as to the possibility of carrying out some of them. I wish to enumerate them briefly for the purpose of approval:

(1) An organized staff. There can be no question that the efficiency of the staff of a hospital is increased by organization, as is true in business or any other human activity. Is it not true that an improvement of an organiza-

tion whether of the individuals or the quality of work that they do always has beneficial results?

(2) That staff membership be limited to competent, worthy and ethical doctors, and that there be no fee-splitting in any way, shape or form. This regulation is clearly for the benefit of the patients and so for the hospital.

(3) That regulation of the professional work of the hospital be brought about by rules adopted by the staff and the governing board of the hospital and providing for monthly staff meetings, and a review by the staff at regular intervals of the work in the various departments. This provides for a high standard of work throughout and enables the staff to check up the work that is being done by its members and to profit by any mistakes. In business the management calls for audits and inventories at regular intervals. Can a hospital whose end product is human life do less?

(4) That accurate and complete case records be written for all patients and filed in an accessible manner. This is of vital importance to the individual patient as it greatly aids him in the proper study of his ailment and will be of great value to the patient on a subsequent admission. In my own experience I have known of a patient who, so far as his history and physical examination were concerned, would have required operation but who was saved an unnecessary and dangerous operation by referring to his previous record in the hospital. It is of inestimable value in the study of a series of cases for statistical purposes, in regard to diagnosis or treatment.

(5) That clinical laboratory facilities be available for study, diagnosis and treatment. While history and physical examination are of prime importance, if the laboratories are not employed many diagnoses cannot be confirmed and still others cannot even be made. Would an industrial concern purchase the metal entering its product by its general characteristics, or would it require a chemical analysis from its laboratories? Would it buy coal without knowing the number of thermal units per pound? I am referring to business so frequently simply to emphasize the point that the procedures the American College of Surgeons is advocating are in accord with clear, level-headed thinking.

But what has all this to do with the superintendent? The real hospital superintendent to my way of thinking must preserve the proper balance in himself between idealism and practicability. He must first of all be an idealist so far as he himself is concerned; his first ideal is that of service—service to the hospital field, service to the community, service to his hospital, and above all service to the

patients in his hospital. If he is not actuated by these ideals he falls far short of fulfilling his proper function. He must also be practical, as he has to see to it that the business end of the hospital is kept at the highest point of efficiency and that the physical needs of the patients, doctors and nurses are supplied.

There can be no argument that the standards set by the American College of Surgeons contribute markedly to the attainment of ideals in two respects, i. e., in the improvement of the staff, and in the care given the patients. To carry them out may militate against the hospital superintendent's practical side, for several of them—such as the proper maintenance of laboratories and the keeping of records—call for the expenditure of money. But I contend that this conflict between idealism and practicability is not real if followed through to its logical conclusion. The practical superintendent wishes his beds kept full; for this keeps down his overhead, as it is almost as expensive to keep a plant going at 65 per cent. of its capacity as it is at full capacity, and as has been well said by a very successful business man, "It is the 20 per cent. additional that keeps a business going." If the public is suspicious of a hospital and lacks confidence in the staff and the work of a hospital, patients will come there only as a last resort. If, on the other hand, the public has full confidence in the staff and the work that the hospital does is of high grade, the public will flock to its doors. This will result in larger revenue directly from the charges for the care of patients, and indirectly from the gifts of grateful patients and from those who have heard of the hospital through them. It goes without saying that a prospective benefactor is not likely to give money to a hospital unless that hospital bears a good reputation both as to its staff[#] and the work that it does. We all have seen these propositions completely proven in real life.

Therefore I hold that the idealism of a superintendent will cause him to do all that he can to further the program of the American College of Surgeons as this will make his hospital one of high caliber and so of the greatest value to its patients. His practical side will cause him to pursue the same course, for it is bound to give better results so far as patients are concerned, in a better standing for the hospital, more patients, more income, opportunities for expansion, and greater service to the community.

600 S. Kingshighway.

SOME PROBLEMS IN RURAL HEALTH SERVICE AND STATE MEDICINE*

FRANK G. NIFONG, M.D.

COLUMBIA, MO.

One hundred years ago this December 27th, was born M. Louis Pasteur, the father of modern scientific medicine. It is only a little over half a century since Pasteur made his memorable discoveries of ferments and germ life, which have become today the very foundation of modern scientific medicine. He was the chief actor in one of the most dramatic incidents of all history when before the Agricultural Society of France at Melun he immunized cattle and sheep to anthrax. It is on such a foundation of facts that modern medicine is builded.

This wonderful evolution in the science and art of medicine has taken place within the memory of practically all members of the College of Surgeons. It has been a marvelous development. Practice has been transformed from an empiric art to a more and more exact science. The art and the service of medicine have become commensurate with the increase in knowledge. It is this momentous change in medicine which has come to us and which has made the practice of medicine so different from what it was a few years ago. Now, being a real physician implies a scientific attainment not possible to a mediocre mind. It means that our novitiates must come prepared with college trained minds and with habits of thinking to enable them to grapple with the problems of medicine. Only the intellectually stronger can come to the study of medicine today and hope to succeed as real doctors. In fact, the science of medicine is so vast and intricate as to make it impossible for any one man to excel in more than one branch. Every doctor should have a broad scientific foundation; but he must specialize if he would excel. It is this need of specialization that leads to "team work" and "group medicine," so-called.

To give efficient medical service today requires the best energies, the finest skill, and the united efforts of the medical profession. To fulfill our obligations and be equal to our opportunities we must not only be willing to serve our people with scientific skill; we must also be able to render service to all classes of people, rich and poor, in the city and in the country alike. Modern conditions present some rather serious problems for solution. These problems are especially serious in rural communities. What is the trouble in the country? Why is the good doctor of the old school passing in the country districts? Why is there

*Read before the Missouri Section, American College of Surgeons, St. Joseph, January 12-13, 1923.

no one to take his place? These are questions which we are all coming to ask. There are fewer and fewer of the country doctors. They are dying off or moving to larger towns. More and more the rural and cross-roads people are being left with out efficient medical service. Still worse, chiropractors and other charlatans in the medical world are invading these districts in increasing numbers. Here in Missouri this condition is as acute as it is grave.

Is it not a sad situation? Our worthiest class of people—the very people who produce our food and who are the foundation of our national prosperity are steadily being deprived of efficient medical service. And this is true of rich and poor alike. In rural communities both rich and poor are being left more and more without the benefits of modern scientific medical service. Contrast these conditions with those of the city folk. To all of them, rich and poor, is available the best medical service that our science enables us to give.

Why does this difference exist? Why do not the young, well-trained medical men go back to their homes in the country? There must be something in our changed conditions that prevents them from doing so. The first cause is an economic one. Medical training requires a much longer training now than formerly, and it is exceedingly expensive. The young doctor who has invested in this costly education does not feel like locating in a place where the returns must necessarily be meager in proportion to the capital invested. He may even be in debt, when he begins, for a part of his education. The city offers a larger opportunity, at least, for returns.

Then there is the question of service and reputation. The young doctor hesitates to go to the country because it offers a limited field for service or for winning a reputation. He is probably trained as a specialist, and he has the ambition to do good work in some specialty which can be satisfactorily pursued only in the city. Moreover, he realizes the value of medical association in making progress and in keeping abreast of a rapidly advancing science. He properly estimates the value of team work and of the assistance of laboratories and hospitals. It is not because of any disloyalty to his home folk that he does not go back to them; it is because he desires to invest his talent where ten or more may return.

How discouraging it must be for a man to have spent several years and much money in acquiring a medical education, and then go to work at a rural cross-roads where many of his talents must rust away; where much of his time and energy must be spent in manual labor and tiresome travel; where the diagnostic advantages of laboratories are lacking and hos-

pital service is not available; where one is even surrounded by ignorance of modern theory and practice, by prejudice and superstition. In addition, he will probably have to compete with some unscrupulous charlatan popularly known to the community as "Doc." It is a depressing picture, and it presents a problem for us to solve.

We have been groping in the dark, it seems, and what we need is more light. Science has trimmed the lamp of knowledge and now it burns clearly. Its flame was never brighter than it is today. Modern science has given us more highly trained physicians than we have ever had before. Nevertheless, a great and worthy part of our population is neglected, much to our shame. Education is the master-key that delivers from bondage and darkness. Education of the doctor? Yes. Let us have more, not less of it, as some would advocate. Education of the laity? Ah! there is the thought that would go far in helping us in our difficulties. Why not begin in the primary schools by educating our children about health matters? This is easily done now by visual methods, and its public benefits are immeasurable.

This taking stock of actual conditions of rural and urban life and the medical service rendered to those respective communities brings the problem home to us. What can actually be done? To those of us who believe in the principles of democracy as expounded by the fathers, especially Thomas Jefferson, a way out of our difficulties appears. It is through no other route than by the power and light of education—higher education, if you will, as it is seen filtering down from our State University to the masses, secondary education in our common schools, but education! education! education! The duty of the state to provide education for all is now a well-established principle, and needs no advocate.

Another well-established function of the state in providing for general welfare is the care of its dependents, the sick and the derelicts of society. It is the manifest duty of the state to protect its citizens from infectious disease, just as it is its duty to protect them from the homicidal insane. It is the duty of the state to care for its aged and infirm, its blind, and its incapacitated people. It is not only the duty but it is good business for the state to rehabilitate many of the sick and crippled who are burdens and non-producers, and restore them to productiveness, happiness, and social efficiency. The welfare of the people, indeed, is our supreme law. Are we coming to "state medicine," then? Yes, we are. To beneficent and helpful state medicine; to state aid to the individual practitioner; to state preventive medicine; to state education both for

doctors and for laity—not to destructive, demoralizing contract practice; not to bolshevistic medicine; no! no! but to a beneficent kind of helpfulness in rendering modern medical service to all the people. Let us make it possible in our state for the people in the rural communities to have the same scientific care as is given people in the cities. Let them have equal advantages. Let us make the country a safe place in which to live. How may this be done?

How may all this be done? Listen attentively to this plan for the state of Missouri: First, we all know that there is no one thing in the service of modern medicine equal in value to the modern hospital. We must have hospitals, and more community hospitals. Each of the more populous counties in this state should have a good hospital, either county or community. To such centers young men of capacity will come, glad to live in the country and to serve their own people with the facilities that a modern hospital provides. Each one of these hospitals will thus become an educational center and a force, inspiring to the doctor and enlightening to the community. Missouri is prepared with a law for this purpose; it has already begun this form of hospitalization. The further extension of the county and community hospital is the next great step in the growth of medical education and of medical service to the people.

Second: A State General Hospital. This is the next step of progress. A State General Hospital is not only badly needed—it is an imperative necessity. Our cities have long since become accustomed to caring for the sick poor. Our state should do as well by caring for the poor of the rural districts also. This would not only be good business, as I have said before, it would be a fulfilling of the state's function of promoting general welfare by restoring many derelicts from a condition of dependency to one of productiveness and public service. If thirty per cent. of our young men in the country of draft age were imperfect, most of them repairable, is there no place in the state's function for a general hospital service? Primarily, then, this State General Hospital should be a great eleemosynary institution, serving the sick poor of our state as do the general hospitals of Kansas City and St. Louis. This kind of service alone would be justification enough for such an institution. No other consideration need be mentioned. But it is still more important that the state have a State General Hospital so as to add to her teaching facilities. There is the duty of educating young men in scientific medicine in order to give the citizens of the state the inestimable benefit of efficient medical service. Young men should be given medi-

cal education in the state, with the ideal and inducement of returning to their home towns for practice. In this way they will give back, through their service to public health and the general welfare, something of the bounty which they have received from the state. This is the kind of state medicine we desire.

Now, what could be more ideal or practical than that this State General Hospital be affiliated with our University of Missouri? Politics would not only be eliminated, but, what is more important, a beneficent dual service of educating doctors and nurses for state service and of giving aid to the sick poor would be rendered. All the medical, surgical, and laboratory administration of this hospital could be given by the medical department of the University of Missouri.

We wish to voice the demand that the first State General Hospital be established at Columbia in connection with the State University, for we believe, indeed we are confident, that it will serve this dual purpose.

A further reason why the first hospital should be so located is that this great educational program can be effectively and efficiently carried out only by our State University. No other university can carry on preventive medicine and other medical educational work among the laity with the authority and the efficiency of a state university. Work of almost incalculable value can be done through an extension department. The laboratory service to the individual practitioner and all the other helpful methods known will go far to make country life tolerable for the doctor, and to make it possible, with hospital aids available, to render scientific medical service at the cross-roads.

SUMMARY

A plea for help:

1. To obtain scientific medical service for the country people.
2. To induce the state to give hospital service to the poor.
3. For the state to educate her sons at Missouri State University for service to our own people.
4. To educate the people in medicine through university extension work and the common schools.
5. To give aid in laboratory and diagnostic service to individual isolated practitioners through a State University laboratory.

DERMATITIS HERPETIFORMIS IN CHILDREN.—Two cases are reported by Edward A. Oliver and Charles J. Eldridge, Chicago (*Journal A. M. A.*, April 1, 1922). One of the patients was only 18 months of age; the other was 10 years old. Fowler's solution caused the eruption to disappear.

**THE JOURNAL
OF THE
Missouri State Medical Association**

FEBRUARY, 1923.

EDITORIALS

RESEARCH WORK AND MENTAL DISEASE

Provision for research work with a definite objective is seldom made; generally when original investigation is desired it is left to the discretion of the worker to choose the subject upon which he will labor. This policy is no doubt the best one in the long run but it will inevitably have the unfortunate consequence that large and important medical fields will not receive adequate attention, particularly when they happen to be rough and thorny. Workers will more often choose subjects that appeal to their fancies or promise quick and certain results, which may not be those of predominant importance to the individual and the community.

Nowhere is this surmise better substantiated than in the sphere of mental diseases. Take, for illustration, the most common mental disease, dementia precox. (Any one of several allied conditions could as well be taken.) This condition is responsible for the incarceration of approximately one-half the inmates of asylums and at least an equal number of sufferers are at large in the community. In our own state well over a million dollars are spent annually in the maintenance of these patients alone. Of more consequence than expense are the imponderables,—the grief of friends and relatives, the disruption of homes and the danger of transmission to the next generation. Indeed, there are few medical afflictions that are responsible for more economic waste or downright misery than this one.

Yet provision for the investigation of dementia precox is amazingly small; in only one place in the United States, apparently, is a sufficiently thorough and systematic study being carried on. And this is not true because dementia precox presents no problems for solution; on the contrary there are many factors which have not been made clear. To mention a few: the nature and bearing of heredity, the influence of early physical and mental disturbances, and the role of associated physical disease or intoxication; indeed, the nature of the pathological process itself. Upon these topics one could quote a half dozen different opinions from as many leading authorities. Ob-

viously, with such a state of affairs, any attempt at prevention or treatment will be most unsatisfactory.

The one place, mentioned above, where adequate investigation is being carried on is the New York Psychiatric Institute on Ward's Island. Here, largely as a result of the foresight of Dr. James V. May, one-time Commissioner of Mental Diseases, an arrangement sufficient for scientific investigation was set up and Dr. George H. Kirby, the present able director, has had the insight to choose dementia precox for consideration. So now a group of workers, each from his own point of view, is concentrating on the causes of dementia precox. With such an arrangement, one may be sure, important results will be obtained; but it is obviously insufficient to rely upon the efforts of one state for the solution of the problems of all. Each state should do its part after the fashion of New York.

So, for us in Missouri, now that we have made a beginning in the organization of the City Sanitarium service at St. Louis, the question naturally arises: Should we not set about providing for the scientific prevention and treatment of dementia precox and allied disorders by initiating a serious investigation into their causes at one of the State Hospitals? May we not have at least one thoroughly trained worker whose sole function shall be research on mental disease?

BILLS IN THE LEGISLATURE

**SENATE BILL NO. 138, HOUSE BILL NO. 287
PRACTICE OF MEDICINE AND LIMITED
BRANCHES**

The principal measure before the Legislature which will affect the medical profession is the bill providing for control by the State Board of Health of the practice of medicine and any limited branch of such practice. The bill closely follows the Ohio law which has been sustained by Supreme Court decisions. The principal features of the bill are:

The State Board of Health to license all persons who practice medicine and surgery or any limited branch of the healing art as a profession.

All applicants for license must show evidence of preliminary qualifications: physicians and surgeons, osteopaths, optometrists and chiropractors, four years of high school as the minimum; midwives, chiropodists, cosmetic therapists, two years of high school; other limited practitioners, completion of the eighth grade of school.

An entrance examiner, to be appointed by the State Board of Health from a list of names furnished by the state superintendent of public schools, is charged with the duty of examining

the preliminary qualifications of applicants and certifies to the insufficiency of such qualifications.

Technical knowledge is required of applicants as follows: of physicians and surgeons, graduation from a school of four years requirements and examination by the board in the subjects now on the statutes. The State Board of Health is charged with the duty of determining whether the schools are in good standing at the time the diploma was issued.

For osteopaths, optometrists and chiropractors a less extensive knowledge of the basic sciences is required, but they must pass an examination in anatomy, physiology, chemistry, bacteriology, diagnosis and hygiene, and have a diploma from a school in good standing of the branch practiced.

A committee from the special branch, nominated by members of that branch, will examine the applicants in the therapy of such branch—osteopaths will examine osteopaths in such methods, optometrists in optometry methods, chiropractors in chiropractic methods.

Limited practitioners are prohibited from prescribing or using drugs, from using electrical appliances and from performing major surgery, and they must confine their practice to the branch for which license is issued. They may not use titles which might lead the public to believe that they are physicians or surgeons, but they may use in connection with their names the name of the branch they are licensed to practice.

The State Board of Health is empowered to prosecute persons who violate the provisions of the act and the State Attorney-General and all county prosecuting attorneys are directed to assist the state board in such prosecutions.

Reciprocity with other states for physicians and surgeons and for osteopaths is provided for.

OTHER BILLS.

SENATE BILL NO. 87. HOUSE BILL NO. 254.

This bill provides that a patient in any state, county or municipal institution may, on demand by himself, or his relatives, be treated by the physician of his choice, or practitioner of any system of healing licensed by the state. It is similar to Senate Bill No. 342 passed by the last session of the legislature and vetoed by the governor, except that the bill in this session does not include hospitals exempt from taxation, which, of course, made the bill of last session apply to every hospital in the state, private and public. The present bill is limited to institutions maintained and conducted by the state, by any county and by any municipality.

CHIROPRACTOR BILLS

SENATE BILL NO. 87. HOUSE BILL NO. 254. HOUSE BILL NO. 286, HOUSE BILL NO. 346

Three chiropractor bills have been introduced numbered as above. They all follow the general plan of the chiropractors demanding that chiropractors who have been practicing in the state for one year shall be licensed, but after the passage of the act they shall be examined by a chiropractic board in anatomy, physiology, chemistry, symptomatology, hygiene, sanitation and in the special methods of chiropractors, have preliminary qualifications of four years high school education or its equivalent, and shall be entitled to all the rights and privileges of physicians and surgeons.

MISSOURI GENERAL HOSPITAL

SENATE BILL NO. 100. HOUSE BILL NO. 252

This is a bill to establish the general hospital at Columbia for the purpose of providing hospital facilities in connection with the re-establishment of the four year course in medicine at the State University. An appropriation of \$1,000,000 will be asked for the construction of this hospital. It will include not only the general hospital care but special facilities for care of children and mild mental diseases. Provision is made for transporting patients from any county in the state to the hospital and return home.

THE STATE CONVENTION AT JOPLIN

We publish a news item of live interest in the shape of a "prospectus" issued by the Jasper County Medical Society concerning their plans for taking care of the State Convention to be held at Joplin, May 8, 9, 10.

The Jasper County Society has the right idea, and we know them well enough to feel perfectly safe in predicting that they will do all that they promise. The preparations they have in mind for your reception and entertainment will not only interest you but will arouse your enthusiasm.

The Jasper County Medical Society can be depended upon to do its part fully and royally.

DOCTOR A. W. McALESTER

The resolutions upon the death of our beloved Doctor McAlester adopted by the Faculty of the School of Medicine of the University of Missouri, and the Boone County Medical Society and the Staff of the Boone County General Hospital, which appear elsewhere in this issue of THE JOURNAL,* speak justly and eloquently of one whom we all loved and whom we all mourn.

*See Page 74.

For many years Doctor McAlester went in and out among us inspiring us by his example both as man and as physician. His qualities as a man endeared him to us and we love to think of his kindness, his justness and his genial spirit. As physician, surgeon, leader and pioneer, his ability and foresight contributed to the advancement of medicine to a far greater extent than we can fully appreciate even now.

The resolutions will be concurred in by everyone who knew Doctor McAlester.

CALIFORNIA SPEAKING

California invites you to attend the American Medical Association Convention in San Francisco, June 25 to June 29, 1923. You are also invited with your families and friends to attend the California State Medical Association meeting in the same city, the Friday and Saturday before the American Medical Association holds its Convention. Some five or six other National and District Medical Associations will meet in San Francisco between June 21 and June 30. Members of the Missouri State Medical Association, in particular, are urged to attend the Convention and to spend their vacation in California.

In a letter just received from Dr. W. E. Musgrave, Chairman of the Local Committee of Arrangements, he says: "Through contacts with various financial, civic, tourist and automobile agencies, we are prepared upon request to assist you in planning your trip, in making you comfortable while at the Convention, in arranging side trips of any length or character, and in any other way acting as your host while in our state.

"We are now making arrangements for a number of automobile caravans from eastern points to San Francisco. From early information it seems that this is going to be a popular method of crossing the continent. If you and your friends desire to come by automobile communicate with us and we will assist you from the moment you leave home until you get back. If you plan to come in any other way, write to us and we will be glad to help you with your arrangements."

You are requested to write to Dr. W. E. Musgrave, 806-9 Balboa Building, San Francisco, for any information of whatever character about this Convention, or about vacation opportunities anywhere in California.

SO IGNORANT MEN SHALL NOT TREAT THE SICK

The support of the newspapers of the state in the passage of the Medical Practice Act, Senate Bill No. 138, House Bill No. 287,

ought to be quite general. The bill is an earnest attempt to protect the public from deception on the part of persons who want to practice some therapeutic method of healing the sick, but who have not taken a full course in medicine. The bill, therefore, provides that such persons shall have some knowledge of the fundamental sciences in medicine such as anatomy, physiology, chemistry, etc., and prohibits them from using titles which might lead the people to believe they are graduates in medicine.

The first support of the kind that has come to our attention was an editorial in the Kansas City *Times* which gives a very clear statement of the purpose of the bill. Under the caption "So Ignorant Men Shall Not Treat the Sick," the *Times* says:

"The person who places the title of "Dr." before his name or sets himself up as a healer of disease or affliction in any form is in a position of peculiar advantage. People, at least many of them, take it for granted that the individual thus designated has unusual ability or special training or both. They put confidence in such individuals, go to them for treatment and then pay their money for what they believe is "professional" service.

An ignorant or incompetent medical practitioner may do much harm. This fact has been widely recognized and today physicians commonly are required to procure proper license or permission for practice from state authorities.

But in Missouri a lax procedure has grown up. There is a tendency to allow practitioners in a limited field to register with a special board. Thus, for instance, with the development of Coueism, there is likely to be pressure from practitioners for recognition by the state through the establishing of a special Coueism board.

The Missouri State Medical Society therefore is advocating a legislative measure which would require registration with the state board of health of all practitioners. The registration would be granted only to those who should pass examinations before the state board in anatomy, physiology, diagnosis and hygiene. The idea is not to limit the field of medical practice, but to make sure that a practitioner, whatever he may call himself, shall know something about the anatomy of the body, shall be able to recognize disease and correctly label it.

That seems to be a common sense proposal. There is nothing unfair about it. No standards are set up that any person competent to deal with disease possibly could object to. The requirement of a high school education, or less than that for some forms of practice, would

work no hardship on any practitioner. Probably it is even less than the public welfare demands.

NEWS NOTES

THE next quarterly clinic of the Christian Church Hospital will be held February 21, 1923, at the Christian Church Hospital, 27th and The Paseo, Kansas City, Mo. Medical profession invited.

DR. BORDEN S. VEEDER, Professor of Clinical Pediatrics, Washington University School of Medicine, St. Louis, has recently been elected a director of the new American Child Health Association.

DR. JOHN GREEN, JR., of St. Louis, was the guest of the Indiana Academy of Ophthalmology and Oto-Laryngology on January 17 and delivered an address entitled, "Factors of Safety in the Operation for Cataract."

DR. R. J. TERRY, Professor of Anatomy, Washington University School of Medicine, was elected secretary of the Anthropological Section of the American Association for the Advancement of Science, at a meeting held on December 29, 1922.

THE following officers were re-elected by the staff of Boone County Hospital at the annual election, December 5, 1922: Dr. Frank G. Nifong, Columbia, Chief of Staff; Dr. J. E. Thornton, Columbia, vice chairman; Dr. Wm. O. Fischer, Columbia, secretary.

The following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies:

Lederle Antitoxin Laboratories:

Bacillus Acidophilus Milk-Lederle.

E. R. Squibb and Sons:

Bacillus Diphtheroid Allergen-Squibb.

Staphylococcus Citreus Allergen-Squibb.

Bacillus Influenzae Allergen-Squibb.

Egg Yolk Globulin Allergen-Squibb.

Horse Serum Allergen-Squibb.

Winthrop Chemical Company:

Theocin Sodium Acetate.

PROFESSOR OSKAR FRANKEL, of the Frauenklinik in Vienna, will arrive in New York early in March for an extended visit to the medical centers of the United States. He is a recog-

nized authority in the field of obstetrical and gynecological pathology and endocrinology. The St. Louis Gynecological Society has extended an official invitation to him to come to St. Louis as their guest and to give during his stay here systematic courses in these subjects to a group of physicians. Arrangements are being made by the secretary of the society, Dr. E. Lee Dorsett, University Club Building, for a twenty hours course on gynecologic pathology and a ten hours course on endocrinology. Those interested might communicate with Dr. Dorsett.

AT the annual meetings held at Toronto, Canada, December, 1922, Dr. E. L. Opie, Professor of Pathology at Washington University School of Medicine, was elected president of the American Society of Experimental Pathologists; Dr. P. A. Shaffer, Professor of Biological Chemistry at Washington University School of Medicine, was elected president of the American Society of Biological Chemists; Dr. J. Erlanger, Professor of Physiology at Washington University School of Medicine, was re-elected treasurer of the American Physiological Society. Dr. P. A. Shaffer served as chairman of the executive committee at the Toronto Meeting of the Federation of American Societies for Experimental Biology, comprising the Physiological, Biochemical, Pharmacological and Pathological Societies.

THE seventh Annual Clinical Session of the American Congress on Internal Medicine will be held in the amphitheaters, wards and laboratories of the various institutions concerned with medical teaching, at Philadelphia, Pa., beginning Monday, April 2nd. Practitioners and laboratory workers interested in the progress of scientific, clinical and research medicine are invited to take advantage of the opportunities afforded by this session. Address enquiries to Dr. Frank Smithies, Secretary-General, 1002 N. Dearborn Street, Chicago, Ill.

AT the meeting of the St. Louis Chapter of the American Library Association held in the library of the Washington University School of Medicine, St. Louis, January 24, Dr. H. S. Gasser, Professor of Pharmacology, spoke on William Beaumont, the pioneer American physiologist, and Dr. Major G. Seelig, Professor of Clinical Surgery, spoke on Personal Recollections of Professor Julius Pagel. The Beaumont collection of manuscripts and books and the Pagel collection on the history of medicine were on exhibition.

A RECENT dispatch from Tokyo announces the appointment of Baron Yoshihiro Takagi,

chief surgeon and professor of surgery in the Tokyo Charity Hospital and Medical College, as a member of a commission of six Japanese doctors who will arrive in the United States early in March as guests of the Rockefeller Foundation for the purpose of studying American and Canadian medical institutions and methods.

The six members of the Commission are:

Dr. Kinnosuke Miura, professor of medicine, Tokyo Imperial University, the leading internist and diagnostician in Japan, and a specialist in neurology; he is physician in ordinary to the Emperor, and accompanied the Japanese delegation to Versailles.

Dr. Sahachiro Hata, professor of medicine, Keio University, and director of the Kitasato Institute; collaborator with Ehrlich in the discovery of salvarsan, and a distinguished biological chemist.

Dr. Keinosuke Miyairi, dean of the medical college, Imperial University of Kyushu, a parasitologist.

Dr. Mataro Nagayo, professor of pathology and pathological anatomy, Tokyo Imperial University.

Dr. Akira Fujinami, professor of pathology and pathological anatomy, Kyoto Imperial University.

Baron Yoshihiro Takagi, chief surgeon and professor of surgery in the Tokyo Charity Hospital and Medical College.

The Commission as a whole, or individual members, will visit the leading hospital and research centers in the United States and Canada, including New York, Philadelphia, Baltimore, Boston, St. Louis, Cleveland, Chicago, Rochester, Minn., Montreal, and Toronto.

THE following letter of Rear Admiral E. R. Stitt, Medical Corps, United States Navy, was approved on August 17, 1922, by the Bureau of Medicine and Surgery, in charge of Rear Admiral W. C. Braisted, Washington, D. C., and published for the information of the medical officers of the United States Naval Service, in the U. S. Naval Medical Bulletin, October, 1922.

July 7, 1920.

To the Bureau of Medicine and Surgery:

Subject: Recommendation that neoarsphenamine be substituted for arsphenamine in connection with use on board ships and at certain stations of the Navy.

1. I would recommend that the use of arsphenamine be discontinued on board ships of the Navy and in its place to substitute neoarsphenamine. This same recommendation would apply to stations and smaller hospitals.

2. In the larger hospitals where facilities for the administration of arsphenamine are satisfactory, the choice between arsphenamine

and neoarsphenamine should be left to the discretion of the commanding officer.

3. This recommendation is made for the following reasons:

(a) In discussing fully this matter with the director of the hygienic laboratory he is of the opinion that most of the accidents attending the use of arsphenamine have been connected with errors in technic. In view of the simplicity of technic when using neoarsphenamine, many untoward results would be eliminated.

(b) In the clinic of the Brady Institute, neoarsphenamine is used exclusively, and Doctor Young and his associates are unable to note any lessened therapeutic efficiency with this drug than when arsphenamine is used.

THE physicians of the Jasper County Medical Society are making big preparations for the coming convention to be held in Joplin, May 9, 10 and 11 of this year.

It is our ambition to make this the largest and best convention ever held, all we ask of you is to be here to enjoy it. The secretary of Jasper County Medical Society writes:

"Various committees have already been appointed and are at work on a program which we feel will make every minute an interesting one during your stay in our city.

It is our idea to go strong on the entertainment part and let the Program Committee look after the scientific end. We are making arrangements among other things for:

1. A President's reception, on the Connor Hotel roof garden. This will not be one of those ice cream and coffee receptions, by the way, but will have a few surprises.

2. A real live banquet with soup to nuts and punch. No scientific addresses unless someone feels that way. We have engaged for this spasm a real honest bunch of Honolulu dancers.

3. A dance that will be worth staying over for. No cake eaters allowed and cheek dancing will be barred, but we will have enough feature stuff to make you forget all of this.

4. A prize fight for the three or four members who do not dance.

5. A golf tournament. There are two golf courses here so bring your clubs.

6. A drive over the district's concrete roads (there are about 75 miles of them) and a visit to a lead and zinc mine.

7. Anything else that you want will be supplied.

Joplin is the gateway to the Ozarks, within a few miles are beautiful streams which will gladden the heart of any Isaac Waltons who may visit us. So drive down and after the convention go on into the Ozark Play Grounds, "The Land of a Million Smiles."

The official hotel will be the Connor, a nine-story hotel with every convenience and comfort that you can wish for. There are also several other comfortable hotels within a few steps of the Connor.

The convention will be held at the new Masonic Temple which is amply large to accommodate all meetings. The main meeting room will seat 1,200, so let's fill it.

As to the ladies—do not leave them at home, for we are planning big things for them, too, including a ladies' golf tournament, a lawn fete, a luncheon at the golf club, and, of course, we want them at the President's reception.

We want the largest attendance at this convention that has ever been had at any meeting of the Missouri State Medical Association and we are going to do everything in our power to make it the most enthusiastic one ever held, so see that you do your part by coming.

JAMES I. TYREE, M.D., Secretary,
Jasper County Medical Society."

OBITUARY

RESOLUTIONS ON THE DEATH OF DR. A. W. McALESTER BY THE BOONE COUNTY MEDICAL SOCIETY AND THE STAFF OF THE BOONE COUNTY GENERAL HOSPITAL.

We, the members of the Boone County Medical Society and of the Staff of the Boone County General Hospital, desire to express to the family of Dr. Andrew Walker McAlester our sincere sympathy in their bereavement and something of our great personal loss.

Dr. McAlester was our oldest and most revered member. He had endeared himself to every Boone County physician during a professional life of over fifty-six years. We who have had the good fortune to have him an associate and adviser in the service to our own home people cannot express the magnitude of our loss. What an inestimable privilege it has been to have such a mentor! Teaching both by precept and example he has set a standard for us that measured up to all the high principles and pure ethical ideals given us by the great masters of our profession. A doctor of the old school, he gave all in heart, and in sacrificing personal service he brought the highest scientific attainments.

He was all and even more than Ian McLaren's "William McClure" in sacrificing service, and much greater in his scientific attainments. The inestimable privilege of association and fellowship with this beloved Christian physician has been ours, and with grateful

hearts we acknowledge this indebtedness for the standards of personal and professional ethics exemplified in his daily life and professional conduct, and we pledge anew our fealty to those high principles of our Hippocratic Oath in this sad hour.

The record of Dr. McAlester's professional work is written in the medical history of Missouri during the more than half century now closed. As Professor of Medicine and Dean of the School of Medicine of the State University he became the leader in medical education at a time when standards were low and proprietary activities dominant. He had a clear perception of the defects of the early methods of teaching and early pointed the way to what has since developed into rational scientific medical teaching, not only in Missouri but throughout America. His foresight and educational interest he maintained to the very day of his death.

Ever interested in political affairs, he was the aggressive spirit in developing for the State of Missouri a system of laws leading to the establishment of a State Board of Health, of which he was long a member and directing spirit.

In his declining years he accepted the honor and responsibilities of the first appointment as State Commissioner of Health by Governor Gardner.

He stimulated the establishment of our county hospital system and lived to see the initial County Hospital Units in Boone, Callaway and Audrain Counties. It was fitting that his last comforts were received in his beloved Boone County General Hospital which he had striven to have established that the benefits of medical service might be available in fuller measure to the citizens of this county.

He inspired the personal benefaction of the Parker Memorial Hospital, the initial nucleus of the rapidly unfolding hospital provision for medical education of the State University. In fact, medical education was his constant interest and concern.

Dr. McAlester as a pioneer brought to us fifty years ago the surgical methods of the great Lister, doing brilliant and successful antiseptic surgery in the log cabins of Missouri. With the intuitive perceptions of the genius that he was, and with a faculty for applying the newest and most refined methods of his art, he led the profession. It was a fitting close to his half century of surgical leadership in the state that he should attain in his last year the satisfaction of national approval expressed by the signal honor of election to honorary fellowship in the American College of Surgeons.

Dr. McAlester was a beloved physician, a

far-seeing educator, a philanthropist who gave of his big heart and his consummate skill to the fullest limit. He was the sympathetic counselor, the loving father, the personal friend. His long life and loyalty and devotion to duty and his personal service are an ever-present memory to us. His example is our inheritance and our inspiration.

We shall revere his memory.

FRANK G. NIFONG,
J. W. CONNOWAY,
CHAS. W. GREEN,
Committee, The Boone County
Medical Society.
The Staff of the Boone County
General Hospital.

Adopted November 2, 1922.

RESOLUTIONS OF THE FACULTY OF
THE SCHOOL OF MEDICINE OF THE
UNIVERSITY OF MISSOURI ON THE
DEATH OF DR. A. W. McALESTER.

In the death of Andrew Walker McAlester, Emeritus Professor of Surgery, the School of Medicine of the University of Missouri has lost the most revered and beloved member of its faculty.

As Professor of Surgery from the inception of the School, and as Dean of the Medical Faculty for 29 years, he constantly inculcated the highest ideals, medical teaching and professional conduct.

A disciple of Pasteur and a student under Lister, he brought to this School the practice of antiseptic surgery long before bacteriology was taught as a medical subject, and before aseptic surgery came into use. He was probably the first surgeon west of the Mississippi River to teach and practice antiseptic surgery.

Owing to his broad vision and medical foresight, he fostered the establishment of laboratory teaching of medical students in the basic sciences of chemistry, physics, biology, bacteriology, physiology and pathology. To him, almost alone, is due the securing of the Parker Memorial Hospital and the Medical Laboratories Buildings of the School of Medicine of the University of Missouri.

His retirement from active work did not end his interest in medical progress. His love for the University and the School of Medicine remained to the end of his life his greatest interest and with this went a co-ordinate driving motive, the elevation of medical ideals in the state. His unselfish idealism and educational vision have been a constant inspiration to the members of this faculty.

He was a persistent and redoubtable fighter for what he deemed the right, both in ethics and in education, and while he was an opponent

worthy of one's steel, his sweetness of disposition, his humor, his geniality and honor seldom left any bitterness.

The faculty of the School of Medicine desires to record its deep sense of loss in the death of Andrew Walker McAlester, pioneer physician and surgeon, leader in medical education, inspiring teacher and ever loyal friend.

DUDLEY S. CONLEY,
MAZYCK RAVENEL,
CHAS. W. GREEN,
Committee.

Adopted by the Faculty of the School of Medicine, University of Missouri, November 2, 1922.

MORRIS E. DERFLER, M. D.

Dr. Morris E. Derfler, of Novinger, died of chronic nephritis at his home, October 30, 1922, aged fifty years. He was buried with Masonic honors on November 1. He leaves a widow and four children.

He was graduated from Washington University in 1909, and spent his entire professional life in practice at Novinger.

Resolved, That in the death of Dr. Derfler the Adair County Medical Society has lost a faithful and worthy member; the community a good and upright citizen, a conscientious and competent physician; his family a kind and loving husband and father; be it further

Resolved, That a copy of the above be spread upon the minutes of this society, a copy furnished the family of the deceased and to the Missouri State Medical Journal and local press for publication.

J. S. GASIWILER, M. D., President.
J. W. MARTIN, M. D., Secretary.

LOUIS W. LUSCHER, M. D.

Dr. Louis W. Luscher, an honorary member of this society, died at the Research Hospital, December 26, 1922.

Dr. Luscher graduated from the Kansas City Medical College in 1879. In 1881 he served as surgeon of the United States Army against the Indians on the plains, and later in the insurrections in Cuba and Honduras. Two years after, Dr. Luscher was in China serving as the only surgeon in the Chinese army in the Franco-China War.

Returning to Kansas City, he entered the practice of medicine and joined this society in 1883, serving as President in 1895-96. For many years he served as Treasurer most efficiently. He was superintendent of the General Hospital in 1911 and 1912 and during his administration the farm for the treatment of alcohol and drug addicts was established. Four years ago Dr. Luscher retired from the active practice of medicine.

The society has again lost an honored and beloved member, and our deepest sympathy is extended to the widow, Mrs. Charlotte B. Luscher, and his three brothers, J. R. Luscher, Picher, Okla.; Wallace A. Luscher, Los Angeles, Cal., and Rudolph Luscher, 4400 East Ninth Street, of this city.

NECROLOGY COMMITTEE.

Amos A. Freyman, M. D.
William F. Kuhn, M. D.

From Bulletin, Jackson County Medical Society.

T. MITCH ANDERSON, M. D.

Dr. T. Mitch Anderson, of Mountain View, a graduate of the College of Physicians and Surgeons, Keokuk, Ia., 1881, died November 2, 1922, from cerebromeningitis. Dr. Anderson was a member of Howell County Medical Society.

CORRESPONDENCE

APPEAL FOR MEDICAL SUPPLIES To the Editor:

I am much interested in Dr. Wilson's splendid constructive work among the lepers in Korea.

He has had most encouraging results from the Chaulmoogra oil treatment in relieving the dread disease, with a number of seeming cures. Also, he has, in connection with the hospital, an industrial training department where these former outcasts and beggars are taught useful occupations. They are willing and eager to learn and are able to make the plant partially self-supporting while they are there. When they recover so as to be discharged; they are no longer a burden on the community, but self-respecting, self-supporting citizens.

I heartily indorse all that Dr. Wilson has said, and trust you can find room for his letter in the STATE JOURNAL.

Sincerely,

H. S. CROSSEN, M.D.

Dr. H. S. Crossen,
Metropolitan Building,
St. Louis, Mo.

Dear Dr. Crossen:

I have frequently talked over with you the very encouraging work for the cure of leprosy which is being done in the two leper stations under my care, Kwangju and Fusan, Korea. As you know I am in the United States this year for my regular year of absence. While here I am anxious to extend, to as many people as possible, an opportunity to help in this splendid service of humanity.

Naturally my mind goes out to my colleagues in the medical profession as the ones who will best understand the scope and importance of the work from a physical standpoint and I feel that if they knew of some of our pressing needs, many of them would be glad to co-operate with me in supplying them. I have therefore made the following list of some of our medical needs which I should like very much to have published in some of the medical journals.

Two microscopes, surgical instruments of all kinds, drugs, dressings and all kinds of hospital supplies, medical books.

We can use any of these things second hand. Some hospitals in America burn many articles in the way of bandages and dressings that could be resterilized and would be very useful to us. I shall be pleased to answer any questions or furnish additional information in regard to this important work and its needs. I can be addressed at my American home, Columbus, Ark., until September, 1923.

Yours sincerely,

R. M. WILSON, M.D.,
Medical Missionary, Kwangju, Korea.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL, FOR 1923

(UNDER THIS HEAD WE LIST THE SOCIETIES WHICH
HAVE PAID THE STATE ASSESSMENT FOR ALL
THEIR MEMBERS)

Chariton County Medical Society, December 31, 1922.

Webster County Medical Society, January 6, 1923.

Madison County Medical Society, January 15, 1923.

Camden County Medical Society, February 1, 1923.

PROCEEDINGS OF THE WASHINGTON UNIVERSITY MEDICAL SOCIETY

Ninety-Third Meeting, January 15, 1923

I. PRESENTATION OF CASES.

A. TWO CASES OF DIABETES MELLITUS.—By DR. ALEXIS F. HARTMANN.

I wish to present, very briefly, two cases of diabetes mellitus in children, because I think they will prove of interest in connection with Dr. Olmsted's paper on the Use of Insulin in the Treatment of Diabetes Mellitus. The first case is a boy of 4 years who has had diabetes for two years. On admission to the St. Louis Children's Hospital six weeks ago he weighed 15 lbs., now weighs 20. As might be judged, his emaciation was extreme on admission. And, moreover, at that time there was also considerable nutritional edema, which has disappeared. His carbohydrate tolerance is about 10 grams. At the present time his diet consists of protein 80 grams, carbohydrate 30 grams and fat 120-150 grams. He has four feedings a day. He is given

15 rabbit units of insulin three times a day before feedings and shows no ketosis and only slight glycosuria at the height of digestion. He is gaining weight steadily on this diet, which furnishes him 150 to 200 calories per kilo of body weight.

The second case is a girl 9 years old who has had diabetes for six months. Her tolerance is 12-15 grams. Her diet now is carbohydrate 25 grams, protein 100 grams, fat 160 grams. There are three meals a day and before each meal she is given 5 rabbit units of insulin. She is diabetic free and only occasionally has glycosuria. She weighs 20 kilos and is gaining.

On the blackboard are figures showing the diet, weight, insulin dosage, etc., of a diabetic infant 20 months old who was presented here a short time ago. He is at present doing well.

2. EXPERIENCE WITH THE USE OF INSULIN IN THE TREATMENT OF DIABETES MELLITUS.—By WM. H. OLMSSTED, M. D., and S. KAHN, M. D.

Through the courtesy of Dr. P. A. Shaffer, Department of Bio-Chemistry, Insulin became available for use in the Barnes Hospital October 1, 1922. Twelve cases have been treated. All cases have been under observation from five weeks to three months, and the following study is based on such prolonged observation:

Glycosuria: With the administration of Insulin glycosuria is cleared up very rapidly, in proportion to the amount of sugar present and the size of the dose given. If Insulin is stopped, glycosuria returns, but it may not return to its former level for a considerable length of time. Blood sugars are reduced very rapidly and excessive falls are accompanied by definite symptoms of overdose. The blood sugar may shift 100 or 200 mgms. in three hours.

Ketonuria: Rapid falls in the acetone excretion accompany the administration of Insulin. It parallels the fall in the urine sugar. One case of diabetic coma was brought out of coma and is still alive through the use of Insulin. The last examination of the patient's urine shows it acetone free. After Insulin is stopped the ketonuria may not return to its former level for a considerable length of time.

Nitrogen Balance: Under the method of low protein, high fat feeding used prior to the use of Insulin, one could not get any diabetic in nitrogen balance whose carbohydrate tolerance was below 20 grams per day. No case of diabetes has been encountered which would not go into nitrogen balance with the use of Insulin. This includes the case coming in in coma. One or two injections of Insulin will throw a case into nitrogen balance. This is the most striking of all the observations made on the use of the extract and it shows that a small amount of carbohydrate is more valuable to the diabetic than large amounts of fat. Nitrogen balance is often obtained without increasing the calories, as shown in several cases.

Standardization of Insulin: The standardization of this extract is still the greatest problem that is confronting those working with it. It is based on the response of normal rabbits to subcutaneous injections and the lowering of the blood sugar. A unit is that amount of Insulin which will reduce the blood sugar of a 1000 gram starving rabbit to .04 in three hours. Rabbits and other animals may be thrown into violent convulsions followed by death by the use of an overdose. The antidote is glucose, and with its use rapid cure follows Insulin poisoning. Clinical symptoms of Insulin overdose may be divided into three stages:

1. Nervousness; restlessness; headache and numbness of extremities.

2. Sense of heat and profuse sweating.
 3. Shaking chill without fever and definite muscular twitching; hyperthermia.
- At this stage blood sugars range from .06 to .04.

The Carbohydrate Value of One Unit of Insulin: Early in the work it became evident that there was a mathematical relationship between the amount of Insulin and the amount of carbohydrate burned through its use. A careful summary of the cases on which we have used Insulin, calculating the carbohydrate available from protein and the carbohydrate in the diet, shows that one unit of Insulin is good for burning $1\frac{1}{2}$ to 2 grams of carbohydrate.

Technique of Administration: Insulin must be used by subcutaneous or intravenous injection. It is destroyed by the enzymes in the gastro-intestinal tract. It can be used by injecting before each meal, or twice daily, and this technique is used by most of the clinicians now using the extract. Here we have attempted the giving of one injection daily and we have found that by giving that injection between 10 and 11 a. m. and following that injection with a noon meal which contains two-thirds of the total carbohydrate being fed, no symptoms of hypoglycemia follow. This technique has two advantages:

1. Only one injection is necessary.
2. The large meal following the injection appeals to the psychology of the diabetic.

The total amount of Insulin administered depends on the amount of sugar in the urine and may be calculated by the above formula of one unit equalling two grams of sugar.

DISCUSSION

Dr. Phillip A. Shaffer: Dr. Olmsted and his associates, Dr. Kahn and Dr. Losersohn, are to be congratulated, first upon their good fortune in having had such very favorable clinical results with this new material without any unfavorable consequences. Experiments with animals have shown Insulin to be exceedingly toxic, and in many human cases the margin between the therapeutic dose and the toxic dose may not be great. I feel that this point may need emphasis because the use of Insulin is distinctly not free from danger. Especially are they to be congratulated upon carrying through in such a minute and detailed manner this very careful study of the effect of the use of Insulin. Certainly our ideas of what it does in the body will come from just such careful, detailed study of the metabolism as is here presented. I do not know of any place in this country where that can be done better than under the system that Dr. Olmsted has worked out in the metabolism ward at the Barnes Hospital. The results which Dr. Olmsted reports, like those from Dr. Hartmann at the Children's Hospital, and the experience in a number of other clinics, leave no doubt of the great clinical value of Insulin, and appear to prove that it restores the power to burn carbohydrate. In an address about a year ago, Joslin reviews the advances of the preceding year in the treatment of diabetes, and considered the progress exceptional. He referred to the higher fat allowance of Newburgh and the better understanding of antiketogenesis. With new points of view and clearer knowledge of his metabolism, the future seemed more hopeful for the diabetic because we could prescribe his food more intelligently. And now about a year later Banting's brilliant discovery offers not merely hope but promise to the diabetic, for it shows the way to restore for the time being the lost power to oxidize sugar.

Drs. Doisy and Somogyi and I have been attempting to purify and concentrate the active constituent of Insulin preparations. We have obtained a white powder, about 0.2 mg. of which subcutaneously in

1-kilo rabbits produces typical convulsions. This material is a protein. MacLeod says Insulin is not a protein, basing his statement upon his observation that Insulin prepared from the pancreas of certain fish does not give the biuret reaction. This conflict of evidence may indicate that our protein is only contaminated with the active material, but I doubt this possibility. The identity of Insulin is not established at present.

Dr. A. F. Hartmann: There are one or two points which should be emphasized in the treatment of diabetes in an infant or young child. These patients are rapidly growing organisms and consequently need a relatively large quantity of food for proper growth. In the case of infants, the food which we must rely upon chiefly is milk or some form of milk, such as the curds of milk which contain fat and protein and little carbohydrate. We cannot feed the infant one large meal a day, containing most of his daily allowance of carbohydrate, as Dr. Olmsted does with his adult patients. He has to be fed five or six meals on a 4-hour interval. Another point of importance is the necessity of watching very closely the blood and urine sugar in order to prevent the effects of an overdose of Insulin. Insulin is best given before meals so that its greatest effect comes at the height of digestion. Knowing the carbohydrate in the meal, we can calculate how much Insulin is needed, easily enough, and give that dose. But not infrequently the infant refuses his feedings and there we are; the Insulin has been given and there is not enough carbohydrates to prevent its producing a dangerous hypoglycemia. Twice we have seen hypoglycemia of .045 per cent; in one case with profuse sweating, cold hands and feet, rapid, poor and irregular pulse and in the other with similar symptoms plus general hypertonicity. In both cases the symptoms were very quickly relieved by intravenous administration of glucose. The possibility of raising the carbohydrate tolerance by Insulin is an interesting subject. One infant, who on admission was apparently a total diabetic, was kept practically sugar free for six weeks, with the use of Insulin. The dosage of Insulin was gradually diminished and finally he was getting only one-half unit per day despite the fact that he was getting 35-40 grms. of lactose in his milk. Still he showed no glycosuria for several days. On first sight this might be interpreted as a rise in his tolerance from zero to 35-40 grams. On the other hand it might be argued that he was not absorbing all the intake of carbohydrate, especially since there was a considerable diarrhea and distention. No sugar was found in the stools but a large amount may have been destroyed by intestinal bacteria.

3. EXPERIMENTAL PRODUCTION OF STREPTOCOCCUS ENDOCARDITIS WITH GLOMERULAR NEPHRITIS.—DR. RALPH A. KINSELLA AND DR. C. C. SHERBURNE.

In human patients subacute streptococcus endocarditis is a fatal disease. No authentic report of a recovery has ever been published. The mechanism of production of this disease in human beings displays two constant factors—*injury of the valve and later infection*. The injury is usually represented by either congenital valvular heart disease or rheumatic valvular heart disease. The later implantation of green streptococcus on this injury usually takes place through the medium of an infection of the middle ear or throat or some other locality where green streptococcus normally breeds. In experimental work Rosenbach recognized these two factors in 1878 and reproduced infection in the heart valve after puncture of the valve. Although a beginning was made so

long ago and more perfect instruments have been devised for injuring the valve, no attempt has been made to reproduce the disease completely and glomerular nephritis of the type which characterizes the disease in human beings has never heretofore been reproduced. All clinical efforts to obtain a cure of the disease have failed. It seems, therefore, that we must have the disease reproduced in animals and then thoroughly study its features if we are to expect a cure.

This work consists in injuring the aortic valve by inserting an appropriate instrument into the left carotid and then, after recovery, the animal is infected by intravenous inoculation of green streptococcus. The inoculated bacteria become implanted at the site of the valve injury and there set up a bacterial vegetation identical with that of human patients. Dogs were used in these experiments. Dogs living 12, 13 and 14 days failed to show any kidney lesion of the glomerular type, although larger infarctions were common. A longer survival of the animal seemed essential for producing the kidney picture. The gross specimens exhibited here and the microscopic specimen showing the glomerular lesion are from a dog which lived 17 days. The glomerular lesion consists of partial thrombosis of the tuft with hyaline degeneration and with hemorrhage and infiltration with polymorph. leucocytes. One of the most important results of this work is that we have reproduced a bacterial infectious disease which is of sufficient duration to permit thorough study of many of the unknown factors of infection and immunity.

DISCUSSION

Dr. E. L. Opie: Dr. Kinsella has been very fortunate in obtaining this lesion which heretofore does not seem to have been successfully reproduced. Dr. Kinsella has shown me sections of the kidneys and it is evident that the experimental nephritis resembles very closely that found in association with streptococcus viridans endocarditis. In some glomeruli there is necrosis affecting part of the tuft and apparently due to capillary thrombosis; hemorrhage into the glomerular capsule has occurred. Other glomeruli are intact.

Dr. Kinsella: Glomerular nephritis has been considered a very important feature of the disease in humans, and while successful reproduction of valve injury with consequent infection has been made, it has been very difficult to get dogs to live long enough to show any kidney lesion. We had dogs that lived as long as 12 or 14 days and it is very significant that they showed no lesions of the kidneys of this type. They showed inter-tubular infiltration of round cells with hemorrhage, which is responsible for their "fleabitten" appearance, because glomerular infections are comparatively infrequent and not common enough to cause such a scattering of small red spots, as is present on the surface of the kidneys. This dog lived 17 days, and therein lies the success of the production of this kidney lesion with this disease. * * * Now, while it is the first time this has been done, the most important result offered by this experiment is the opportunity to study a bacterial infectious disease. There are very few infections reproduced in animals v. g.; typhoid fever has never been reproduced. Most of the reproductions are of a transitory character, lasting but a few days. In addition an animal can be made to show bacteremia for perhaps a very long time. Seventeen days is a very considerable period of time to study a number of obscure factors in infection and immunity. That is, I think, the most important result of this work.

Dr. A. E. Strauss: One feature of the paper that has not been emphasized is the production of electrocardiographic changes in these animals. This is the first time in which experiments of this type have been checked by the electrocardiograph. The production

of right and left bundle branch block is another instance of what we have known clinically for some time, i. e., the profound and general effect upon the heart of these infections, not only of the valves but of the conduction system and myocardium as well. It will be interesting to note what further study of the heart will show. These changes may be merely toxic, possibly hemorrhagic, possibly embolic, or they may be due to other changes affecting the conduction system, but whatever they are it emphasizes the fact that in infections of the heart of this nature involvement of the valves is but a minor effect, while involvement of other parts of the heart is equally important in the clinical manifestations.

4. THE FATE OF INJECTED PROTEIN IN NORMAL AND IMMUNE ANIMALS.—By DR. E. L. OPIE.

Antigens such as horse serum or egg white injected into a normal animal are demonstrable in the blood during a period from approximately seven to nine days after injection; antigen disappears shortly after the appearance of precipitin at a time when the concentration of precipitins is rapidly increasing.

In exceptional instances antigen persists during a much longer period, for example, during 19 days and in these animals formation of precipitins proceeds slowly and their concentration in the serum remains low.

With the progress of immunization injected antigen exhibits a decreasing tendency to find its way into the circulating blood so that in a well immunized animal horse serum or egg white injected into the subcutaneous tissue is not demonstrable in the blood serum even if tests are made at intervals from 1 to 24 hours after injection.

Complex antigens such as horse serum or egg white injected into an immunized animal cause a diminution of the concentration of precipitins but precipitins do not disappear completely and in the early stages of immunization both antigen and antibody may be demonstrable in the same serum.

A simple antigen, namely, crystalline egg albumen, purified by repeated crystallization, injected into an animal immunized against this substance may cause temporary but complete disappearance of precipitin and though antigen may appear in the serum in no instance has this antigen and its precipitin been simultaneously demonstrable in the serum.

The foregoing observations upon living animals, like the co-existence *in vitro* of antigen and antibody which fail to form a precipitate, are explained by the presence of multiple antigens in mammalian serum or in egg white and a corresponding multiplicity of antibodies in immune sera. Crystalline egg albumin carefully prepared by the usual methods is a relatively pure antigen and brings about the formation of a single precipitin.

DISCUSSION

Dr. R. A. Kinsella: I think these results are very intimately associated with the mechanism of infection. Perhaps bacteria are similar to these precipitates. Perhaps the formation of non-bacterial infarcts—capillary infarcts—might be explained if we knew how precipitates form between antibodies and toxic albuminous substances when the structure of the toxic substance is capable of immunization. I think it would be most interesting if we could find out the fate of the precipitates; if we could find out where they lodge. If in some way they could be strained we might explain experimentally the fate of horse serum injected into immunized animals.

CALLAWAY COUNTY MEDICAL SOCIETY

The Callaway County Medical Society met December 21, 1922, at the Fulton Country Club at 6 o'clock p. m. The following members were present: Drs. McCubbin, McCall, Crews, Owen, Rusk, Ferguson, Hill, Williamson, F. J. Nichols, Christian and Yates. Guests, Senator N. T. Cave, of Fulton; Drs. G. L. Noyes, Joe Thurston, M. P. Neal, D. A. Robnett, A. W. Kampschmidt, W. O. Fischer and M. P. Ravnel, members of Boone County Medical Society; Drs. J. G. Moore, J. E. Miller, J. F. Jolley, J. F. Harrison, Brashear, L. Weir, and Fred Griffin, members of Audrain County Medical Society.

After a social hour at dinner at the Club, Senator Cave was introduced and addressed the members and guests on "The Legal Status of the Medical Profession." He reviewed the history of past legislation governing the practice in this state, and outlined present needs and the best way to attain them, emphasizing especially the education of the laity in reference to sanitation and the public health. He also emphasized the need for high educational requirements for applicants for license to practice the healing art in this state, and pointed out that if such high standards were required of all practitioners the various cults would soon be eliminated. The Senator, when a member of the House, was a valuable friend in helping to defeat the bills proposed by the cults. The subject of the Senator's address was discussed by several of the guests and members.

Dr. Guy L. Noyes, Dean of the Medical Department of the State University, was introduced and addressed the Society on a four-year medical course at the University and the need of a State General Hospital at the University. This address was well received and the position taken by Dr. Noyes was generally endorsed in the discussion that followed.

Officers for 1923 were elected as follows: President, Dr. A. D. Ferguson; vice president, Dr. W. H. Williamson; secretary-treasurer, Dr. M. Yates; delegate to State Association, Dr. R. N. Crews; alternate, Dr. M. Yates.

MARTIN YATES, M.D., Secretary.

MONITEAU COUNTY SOCIETY PROCEEDINGS

The regular monthly meeting of the Moniteau County Medical Society was held in California, December 14, 1922. This being the meeting for election of officers no papers were read. The following officers were elected for 1923: president, L. L. Latham, Latham; vice president, J. P. Burke, California; secretary-treasurer, R. H. Miller, California; delegate, G. S. Wilson, Fortuna; alternate, R. H. Miller, California; censors, B. F. Bowline, J. W. Marsh, Tipton; H. R. Popejoy, California.

The next regular meeting will be held in California the second Thursday in March.

R. H. MILLER, M.D., Secretary.

RANDOLPH COUNTY MEDICAL SOCIETY

The Randolph County Medical Society held its regular monthly meeting in the Chamber of Commerce rooms at Moberly Tuesday evening, January 9th, with the following members present: Drs. G. O. Cuppaidge, C. B. Clapp, R. A. Mitchell, S. T. Ragan, R. D. Streeter, L. O. Nickell, C. B. Lawrence, T. S. Fleming, F. L. McCormick, M. E. Leusly and C. H. Dixon, of Moberly; Drs. D. A. Barnhart, G. G. Bragg, and R. G. Epperly, of Huntsville. Dr. Epperly's petition was just received at the December meeting and he starts the New Year by attending the first meeting, although having to come

seven miles to do so. Dr. R. A. Mitchell gave us a splendid paper on "Convulsive Disorders in Infants." After a full discussion of the paper someone began telling of a case of his, which started what turned into an old time "experience meeting" in which practically every member recalled some of his past experiences which were very enjoyable and brought out many practical things.

Dr. Nickell will be the essayist for the February meeting.

C. H. DIXON, M.D., Secretary.

SCHUYLER COUNTY MEDICAL SOCIETY

The Schuyler County Medical Society met in the office of Dr. W. F. Justice, Lancaster, December 20, 1922, at 2 p. m. The meeting was called to order by Dr. A. J. Drake, vice president. The following were present: Drs. W. F. Justice, J. H. Keller and A. J. Drake of Lancaster, and J. B. Bridges of Downing. The minutes of the last meeting were read and approved.

There were no papers read at this meeting, but a number of cases were reported and discussed.

The following officers were elected for the ensuing year: Dr. J. C. Coffee, Queen City, president; Dr. A. J. Drake, Lancaster, vice president; Dr. J. B. Bridges, Downing, secretary-treasurer. Dr. J. B. Bridges was elected delegate to the State Meeting and Dr. J. H. Keller, alternate.

J. B. BRIDGES, M.D., Secretary.

ST. LOUIS COUNTY MEDICAL SOCIETY

December 13, 1922

The St. Louis County Medical Society held their Annual Dinner and election of officers on Wednesday evening, December 13, 1922, at the Kirkwood County Club. About fifty of the members, their wives and guests assembled for a most enjoyable repast and entertainment.

The tables were decorated with chrysanthemums and the ladies received favors of chrysanthemums. After the milk-fed chicken and many other good things which accompanied it had been disposed of, the society was entertained by Miss Dorothy Jones, who played several splendid piano numbers. Miss Dorothy Townsend delighted the society with her selection of vocal numbers and Mr. Vincent Townsend rendered several soli on the cornet that rounded out a well balanced and splendidly given program. Dancing was the concluding feature of the evening and it was voted the most enjoyable evening the society had experienced in many years.

During the business meeting which followed immediately after the dinner, Dr. W. F. O'Malley, of Webster Groves, was elected president for the ensuing year, Dr. Robt. B. Dennie, of Creve Coeur, was chosen as vice president, and Dr. Otto Koch, of Clayton, is the new secretary and treasurer. Dr. Garnet Jones, of Maplewood, was elected censor, and Dr. Clyde P. Dyer, of Webster Groves, was elected delegate to the Missouri State Medical Association.

The guest of the evening and principal speaker was Dr. Robert E. Schlüter, who gave an interesting talk upon the subject, "The Need for More General Practitioners." He deplored the rapidity that most graduates of medicine showed in rushing into a specialty before their sound judgment had been developed by a number of years at general practice. The average specialist too soon loses sight of all the elements entering into diagnosis and the patient's symptoms are usually considered for the most part only from the specialist's own viewpoint instead of from a careful survey of all the factors

and general health of the patient. Short talks were also made by Dr. E. A. Babler, Dr. Garnet Jones and others.

JANUARY 10, 1923

The St. Louis County Medical Society held its regular monthly meeting on Wednesday afternoon in the directors' room of the Webster Groves Trust Company. The large attendance was unusually gratifying to the new officers, and special plans are being made to attract every physician in the society to all the meetings.

Dr. Walter Jones, of St. Louis, read a most interesting paper dealing with "The Advantages and Disadvantages of Local Anaesthesia in Major Surgery." Discussion by many of the members brought out details and a vote of thanks was accorded Dr. Jones.

The following committees were appointed for the year by Dr. W. F. O'Malley, the President of the Society:

Membership Committee—Dr. W. H. Townsend, Maplewood, Chairman; Dr. Robert Dennie, Creve Coeur; Dr. Horine Miles, Webster Groves.

Program Committee—Dr. Clyde P. Dyer, Webster Groves, chairman; Dr. Otto W. Koch, Clayton; Dr. W. F. O'Malley, Webster Groves.

Legislative Committee—Dr. A. W. Westrup, Webster Groves, chairman; Dr. Robert Dennie, Creve Coeur; Dr. L. W. Cape, Maplewood.

Publicity Committee—Dr. Clyde P. Dyer, Webster Groves, chairman; Dr. Otto W. Koch, Clayton; Dr. J. B. Suddath, Clayton.

Orto W. Koch, M.D., Secretary.

BOOK REVIEWS

GENERALIZED PAIN. Clinical Symptomatology of Internal Diseases, Part 2. By Professor Dr. Norbert Ortner, Vienna. Only authorized translation into the English language of the 2nd German Edition by Francis J. Rebman, with an introduction by Thomas Webster Edgar, M. D., New York. New York Medical Art Agency, 1922.

This book deserves much praise and commendation, for it is a work that is the result of very careful observation, good deductive logic and varied experience. The author's keen analysis of pain and physiology together with the clear and concise manner of interpretation by the translator, Francis J. Rebman, make the reading of the 569 page book a pleasure.

The author dwells at great length upon pains in the heart and cardiac area. He next considers pain originating in affections of various sections of the body, such as the spine and back, thorax, head, extremities, shoulder, girdle, muscles, skin and long bones. Some seventy odd pages are devoted to the interpretation of headaches.

The book more than conveys the salient features and symptoms of painful internal disease. It is a work that every student of medical science should read. No library is complete without this excellent treatise on differential diagnosis of body pains, which is presented in a very readable manner.

A. C. C.

OCULAR MANIFESTATIONS OF THE RAT WHICH RESULT FROM DEFICIENCY OF VITAMIN A IN THE DIET.—It is the impression of Arthur M. Yudkin, New Haven, Conn. (*Journal A. M. A.*, December 30, 1922), that, from a clinical standpoint, the incipient changes in the eyes of rats showing nutritive disturbances on diets deficient in vitamin A are like the condition known as xerosis of the conjunctiva and cornea in man; and the more advanced picture is that of keratomalacia.

THE JOURNAL

OF THE

Missouri State Medical Association

The Official Organ of the State Association and Affiliated County Societies
Issued Monthly under direction of the Publication Committee

Volume XX

ST. LOUIS, MO., MARCH, 1923.

NUMBER 3

E. J. GOODWIN, M. D., EDITOR
3529 Pine St., ST. LOUIS, MO.

PUBLICATION COMMITTEE { W. H. BREUER, M. D., Chairman
S. P. CHILD, M. D.
M. A. BLISS, M. D.

ORIGINAL ARTICLES

THE USE OF CHICKEN BLOOD IN THE TREATMENT OF PNEUMONIAS IN CHILDREN. A PRELIMINARY REPORT.

From the Children's Mercy Hospital.

HARRY C. BERGER, M.D.,
and

JAS. G. MONTGOMERY, M.D.
KANSAS CITY, MO.

During the winter of 1921-22 there presented themselves on the service of one of us, at the Children's Mercy Hospital, a number of cases of pneumonia which did not respond to the usual treatment as well as might reasonably be expected. It was found necessary to inaugurate other measures to meet this condition. Among other things transfusions of blood, from individuals with a comparatively high immunity, were given with some apparently good results.

The idea suggested itself that some species other than the human might normally have a high immunity to the commoner infections which we found in our pneumonias, particularly the pneumococcus. Reptiles were first considered, but because of the obvious difficulty in securing quantities of these, attention was next turned to their cousins, the fowls. We were told by veterinarians that chickens had a high immunity to the ordinary infections, except for the streptococcus hemoliticus. By experimentation we found this to be true particularly of the pneumococcus. We were unable to produce pneumonia in the chickens with live cultures, or fresh rusty sputum from adult pneumonia patients when given intravenously, intratracheally (with a large needle) or directly into the lungs and pleura in 4.5 and 5 c.c. quantities.

Whether this was due to special bodies or antibodies present in the birds, or to the relatively high temperature normal to the chicken, we did not definitely determine. None of these chickens were chilled for our work.

By the use of numbers of dogs, rabbits, and guinea pigs we did find that chicken blood

could be given in large amounts intramuscularly or hypodermically with very little if any reaction and no apparently objectionable results.

A considerable amount of animal experimentation was also conducted during the summer just past, but will not be made a part of this brief report.

It is our purpose at this time to give only a short preliminary report of the clinical results obtained by us with injections of whole chicken's blood in pneumonias in children. We are not in this report attempting to explain our results. Nor are we at this time prepared to compare the relative value of the whole chicken blood and the serum derived from the chicken blood, although we are now having prepared at a commercial laboratory a quantity of serum for such a comparison. No fowls except the chicken have been employed. We have found that the bacterial organisms involved will grow on chicken blood agar, chicken blood serum agar and on human serum agar. The exact relative virulence of the organisms so grown has not been satisfactorily determined.

It is with a desire to have reports from other observers, and from other groups of patients, that we issue this brief report of our clinical results at this time.

Our technic is very simple. A large chicken is placed on its back and held in position by two attendants, with the neck in a convenient posture. The feathers are plucked from the ventral side of the neck. The attendants' hands are covered with sterile towels, the field is painted with tincture of iodine, and covered with a small modified "lap sheet," the edges of which are held in place by tenaculum forceps.

Meanwhile the patient is placed on a table by a nurse whose duty it is to cleanse a suitable field to receive the injection of blood, and to massage this area while the blood is being given and afterwards, to hasten absorption.

Our instruments, syringes, and sterile supplies are handled by two nurses; one wears sterile gown and gloves, the other cleanses and resterilizes syringes and instruments as required.

A longitudinal incision is made through the skin, which has been prepared, on the chicken's neck, and the jugular vein is dissected free from connective tissue. The vein is then grasped and firmly held with a hemostat. Care must be taken not to injure the nerve lying on the wall of this vessel, as injury to it often results in a contraction of the vein and a greatly diminished supply of blood. A large calibre needle attached to a syringe, 50 to 100 c.c. capacity, is inserted in the vein, pointing toward the bird's head, and as much blood as possible is withdrawn. We have found it impractical to attempt changing syringes on the needle if more blood seems available, because of the extreme ease with which the chicken's blood clots. Nor have we considered it advisable to use citrate.

This blood is then injected as rapidly as possible intramuscularly, or hypodermically in the child, with constant massage. Light clots frequently form in the syringe, and we see no objection to allowing these to pass through the needle if they will, since we have found absorption rapid and free from reaction in either case. This process is repeated, using new chickens, until we have injected the desired amount of blood. This amount we believe to be 300 to 500 c.c. Should the serum give us results equally good with the fresh whole blood, the technic will, of course, be much simpler.

This year (1922) we have been able to add materially to our small series of cases of last year. The number of cases is still entirely too small, however, to attempt forming any definite conclusions.

The regular routine of treatment for our pneumonia patients for several years past has been as follows:

Culture nose and throat on admission, and sputum as soon as possible. Blood examination. X-ray chest. Open air on glassed balcony unless otherwise ordered. Diet, liquid and soft solid. (High caloric.) High colonic irrigation on admission. Get two stools daily, by laxative as required. Castor oil on admission. Mustard plaster, twice to four times in 24 hours. Steam inhalations (compound tincture benzoin and menthol) in special steam room, P. R. N. Brandy, gtt. 20 to 60 q. four hours. A mild sedative, an expectorant, and atropine sulphate with creosote carbonate. Camphor in oil, digitalis, saline hypodermoclysis, etc. P. R. N. as ordered.

This has been carried out on all of the patients receiving injection of chicken's blood in the same way as in all of our previous cases for the past several years.

The cases in which the chicken blood was given showed a variation from those who had not had the injection in temperature, pulse,

respiration, general condition, X-ray and physical findings.

The temperature is affected less than any other phase of the cases. If a small quantity of chicken's blood was given at the outset of the disease, the temperature showed a big drop within a few hours. This was followed by a slight rise 24 or 48 hours later. The later rise was then taken to mean that an insufficient amount of blood had been given, and on re-injection a drop to near normal resulted. This was usually permanent. In those cases where the blood was given late in the disease, the temperature curve showed only a slight gradual drop and then rose again to, or near to, the level obtaining before injection. On repeated injection the same process again occurred. Possibly our dosage was too small. The greatest factor seemed to be the duration of the disease preceding the injection.

The pulse followed, in a general way, the temperature curve but usually showed a proportionately much greater drop and lesser rise later.

The respiration rate showed the effect of the injection to a markedly higher degree than the temperature and pulse curve. Where a large injection was given early in the illness the respiration immediately came down to, and remained at, the normal rate. In almost every case the respiration rate could be brought to normal by repeated injections. This reduction in respiratory rate was permanent throughout the remainder of the illness.

In the general condition of these patients we saw the greatest improvement. The extremely ill, highly toxic, cyanotic child was in a few hours transformed into a child that did not seem severely ill; into one who was interested in his surroundings, took food fairly well, had a good color, and was free from the appearance of intoxication. The temperature and pulse might remain high, but the child was unembarrassed and free from dyspnea.

We are inserting the chart of one of our cases to illustrate the points mentioned. The following notes are extracted from the hospital record.

Elmer R. Born August 22, 1920. Brought to hospital by Dr. C. with a previous diagnosis of pneumonia. Has had a cold for a week and became acutely ill about 24 hours ago. Baby has Cheyne-Stokes' respiration and is unconscious; face is mottled and blue. Physical examination reveals a critically ill child of about two years. Enters the hospital in a state of extreme exhaustion and respiratory insufficiency. Extremely cyanotic. Pulse rapid, thready and irregular. Breathing rapid and labored, Cheyne-Stokes in type. No gross deformity or abnormality in development. Well nourished.

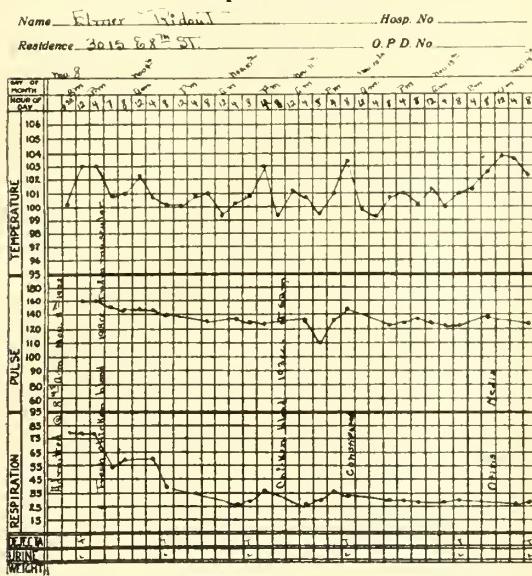
Skin hot and dry; no eruption.

Head. Eyes, ears, nose, mouth, throat, negative.

Chest. Symmetrical, expansion equal, many fine crackling and moist crepitating rales throughout. Ex-

piratory sounds prolonged. Resonance unimpaired except for dullness over upper left chest. (Consolidation of this area was borne out by X-ray findings.)

Temperature Chart



Heart. Rapid, sounds faint and distant, irregular, no murmurs heard.

Abdomen. Soft and easily palpable, liver edge just felt, spleen not felt, no masses, tenderness or muscle spasm; genitalia, extremities, reflexes, normal.

This child was brought to the hospital in the morning, and 198 c.c. of chicken blood was administered in the afternoon. The following morning his color was normal, he responded to his surroundings as a normal child would do, his mentality being clear. His respirations, while still rapid, were no longer labored, and by afternoon had fallen to 25 or 28 per minute. Twenty-four hours after this injection one would not, in passing through the ward, have selected this child as the one who was seriously ill. On the third hospital day the temperature again rose to 103° F. and 193 c.c. more of chicken blood was given. The next rise in temperature shown was due to constipation, apparently, for evacuation of the bowels brought it down immediately. During the sixth day an otitis media developed with an accompanying rise in temperature. His progress from this point was uneventful, and further charting is omitted here to conserve space. The laboratory findings have been omitted because we cannot vouch for their entire accuracy.

These cases have been carefully checked with X-ray at frequent intervals and have shown clear chests earlier than the cases in our regular routine treatment alone.

The leucocyte counts have seemed to drop with the respiration rate rather than with the temperature curve. They have usually not been made by us and we are unwilling, at present, to base conclusions on those made.

SUMMARY

The blood of chickens was used for this work because of the natural immunity of the

chicken toward the infections commonly found in the respiratory tract, except for the streptococcus hemolyticus. We have employed whole chicken's blood in the treatment of these cases.

The good results obtained were inversely proportional to the duration of the disease preceding injection. The tremendous relief from the toxemia was shown by the immediate drop of respiration to approximately normal, and remaining there throughout the illness, the disappearance of cyanosis, the increase in appetite of the patient, and the notable change in his reaction to surroundings.

Care should be exercised to determine the presence or absence of a sensitization to chicken in any patients giving a history of having had attacks of asthma.

If the initial dose is sufficient it might be unnecessary to repeat the injection.

No distinction was made as to the type of pneumonia, and the blood was given without waiting to determine the bacteriology of the case.

NOTE.—Since submitting this report for publication we have found the work of Bull and McKee (*Am. Journal of Hygiene*, vol. I, No. 3, 1921) showing definite specific immune bodies to be present in normal chicken serum to each specific type of pneumococcus.

906 Waldheim Bldg.
425 Argyle Bldg.

FACTORS OF SAFETY IN THE OPERATION FOR CATARACT*

JOHN GREEN, JR., M.D.

ST. LOUIS

No one will gainsay that the operation for cataract is the most important of all the operations on the eyes. Indeed, one might go a step farther and state that it is one of the most important operations in all surgery. Though the issue is not one between life and death, it is one between the night of blindness and the sunshine of sight. There is, doubtless, some degree of exaggeration in the oft heard statement, "I'd rather be dead than blind," nevertheless that expression vividly reveals the fear and despair of one who is threatened with loss of sight.

Despite our ever growing knowledge of the etiology, pathology and therapy of such diseases as trachoma, chronic iritis, retinitis, chorioiditis, optic neuritis, optic atrophy, choked disc, glaucoma, etc., there are added, each year, to the roster of the blind thousands of victims of the diseases just mentioned. Much more fortunate is he whose failing vision is

*Read by invitation before the Kansas City Eye, Ear, Nose and Throat Society and the Indiana Academy of Ophthalmology and Oto-Laryngology.

due to uncomplicated senile cataract, for, if he be so fortunate as to come under the care of a conscientious and skillful ophthalmic surgeon, he stands a very good chance of regaining satisfactory vision.

When a patient with cataract places himself in the hands of an ophthalmic surgeon that patient has a right to expect that the surgeon shall use all his skill and judgment to the end that he shall regain an eye with sight and one that, though lenseless, shall perform its various functions and shall be free from post-operative sequelae.

Every cataract operator has had various experiences—some bitter, some tinged with regret at the occurrence of a complication that might have been foreseen and guarded against, others happy, as at the brilliant outcome of an unpromising case, and out of the fullness of his experience have come certain convictions as to what are the factors which tend toward a successful surgical issue and permanent restoration of sight. No man's experience is duplicated by that of any other man, so that a catalogue of these "Factors of Safety" prepared by one operator would not be precisely the same as that prepared by another. And yet I believe that, given two men of equal experience and working under similar conditions, their conclusions would not be far apart.

I assume that most of us practice ophthalmology individually—by which I mean that we have reached our conclusions as the result of personal experience and not as part of a hospital group or clinic. It would seem profitable, therefore, to present before you my personal views, in the hope that those of you who have reached different conclusions may tell me where I "get off."

The patient is primarily interested in the permanent restoration of useful vision. He is interested, also, in a secondary degree, in obtaining an eye that shall be free from post-operative sequelae, primarily iritis and iridocyclitis with its attendant dangers of closure of the pupil, and, remotely, secondary cataract, secondary glaucoma, etc.

It is, of course, a truism that, in the classical or extra-capsular operation, the operation is incomplete: the cataractous lens is not removed in its entirety; always a varying amount of lenticular material is left behind. In the most favorable cases the entire central portion of the lens is expressed but there are peripheral masses which, hidden behind the iris, remain enclosed between the posterior and the remains of the anterior capsule. In microscopic sections, this so-called "Soemmering's ring" can be demonstrated even after what appears to have been a complete extra-capsular operation.

After expression of the lens the operator is always gratified to see a clear black pupil

without trace of cortex or capsular remains. His gratification may be short-lived, however, as it often happens that cortex which has been hidden away behind the iris, swells by contact with the aqueous and appears in the pupillary space. If this cortex has a flocculent or feathery appearance, it will rapidly resorb, without giving rise to signs of iritic or cyclitic irritation. If, on the other hand, the cortex appears thick and dense, it is probably of the "sticky" variety. Such cortical remains are very slow to resorb, frequently give rise to iritis and iridocyclitis which may eventuate in a closed pupil, in dense secondary cataract, or, in case of blocking of the filtration angle, in secondary glaucoma.

A complete surgical removal of the lens, the so-called intra-capsular operation, has for more than a generation been the hope of most ophthalmic surgeons. First practised as a routine by Pagenstecher, it failed to meet with general acceptance. It remained for Col. Henry Smith, of India, to develop an entirely new technique, and, by reason of his immense material, to acquire great skill in the performance of the operation. Pilgrims from various lands, including the United States, journeyed to Jullundur and there, under the watchful eye of the master himself, learned the rather difficult technique and acquired the "educated touch" by performing the operation on several hundred Hindus. Returning to America, these pilgrims heralded the dawn of a new day in cataract surgery, and set themselves to popularize the operation in their native land. Hundreds of operations have been performed in the United States by these pupils of Col. Smith, but is it not significant that not a single one of the returning pilgrims has adhered strictly to Smith's technique? One may fairly infer, therefore, that even in the hands of these experienced men the Smith operation was found wanting in one or more particulars.

The recent visit of Col. Smith to the United States gave American Ophthalmologists an opportunity to honor a distinguished colleague, who, in the face of almost insuperable difficulties, had accomplished a great work in India. The clinics held by Col. Smith were witnessed by many hundreds of his American colleagues. An account of at least one such clinic, held at the Wills Hospital, in Philadelphia, has been published by Dr. Zeitmayer. Although little more than a bare recital of operative and post-operative events, and written with admirable restraint, this brief paper clearly indicates that our Philadelphia colleague was not favorably impressed by the Smith-Indian operation. It is betraying no confidence to state that the unfavorable impression created in Philadelphia was duplicated in St. Louis.

In St. Louis the patients operated upon by

Col. Smith were systematically followed up, and a questionnaire was sent to the referring ophthalmologists five months after the date of the clinic. Through the courtesy of Dr. Wm. F. Hardy, Chairman of the St. Louis Committee for Col. Smith's Clinic, I am permitted to present the following data taken from his paper recently published in the *American Journal of Ophthalmology*.

Reports of 41 operations were returned:

Intracapsular operations.....	36
Capsulotomy operations.....	2
Secondary cataract.....	3
Loss of vitreous.....	11
Iridocyclitis.....	14
Iritis.....	12
Choroidal hemorrhage.....	5
Prolapsed iris.....	9
Striped keratitis.....	8
Updrawn pupil was noticed in 20 cases.	

Vision:

6/6=2 (one of these was a capsulotomy operation).

6/9=4

6/13=5

6/15=2 P. L. or H. M.=6.

6/20=3 Not recorded, but bad=4.

6/25=3 0=7 (of these 3 came to enucleations).

6/40=4

1/37=1

Reduced to a percentage basis, 56 per cent. of the patients had moderate to good vision (6/40 to 6/6). Forty-four per cent. must be classified as failures.

It is the writer's firm conviction, based on observations of Col. Smith's work and the results of operations by American colleagues who perform a modified Smith operation, that this type of intra-capsular extraction will be performed less and less frequently by American surgeons. Whether any other form of intracapsular operation will attain a permanent place among cataract operations, such as Hulen's suction method (recently modified by Barraquer), expression of the lens in its capsule after rupturing the zonule by means of lateral and vertical displacement of the lens (Arnold Knapp), or removal of the cataract by traction alone (Verhoeff, Greenwood) or some other method not yet proposed, only the future can determine.

You have doubtless inferred that it is my conviction that the intra-capsular method, as at present practised, is not a factor of safety in the operation for cataract. Let us, then, pass to a consideration of internal conditions inherent in the body and the eye, and external measures, general and local, that may be influential in securing a satisfactory visual result.

First, let us consider the patient's general state. The majority of our cataract patients are elderly persons in reasonably good general condition. They have some degree of angi-sclerosis, often have exalted blood pressure, may have moderate glycosuria and albuminuria, are frequently the victims of chronic bronchitis. In the male there is sometimes a cystitis, incident to enlarged prostate. If there are remaining teeth many will be found to be attacked with Rigg's Disease and some will harbour apical abscesses. Improvement in many of these conditions can be brought about by appropriate medical and surgical treatment. Most important is the elimination of foci of infection in the teeth, tonsils and intestinal tract—the three T's so graphically described by George Huston Bell. Diseased tonsils should be removed, pyorrheic teeth treated and those with apical abscesses extracted. Faulty or deficient elimination demands appropriate treatment.

Much can be done toward lowering increased blood pressure by a week's quiet sojourn in bed at the hospital, with a meat free diet and saline catharsis and small doses of potassium iodide and nitroglycerine. Immediately prior to operation the abstraction of a pint of blood will effect a temporary reduction in blood pressure and thus lessen the risk of intra-ocular hemorrhage.

Operation on the subjects of chronic bronchitis had best be deferred to a time in the year when the bronchial irritation is at a minimum. By means of codein and heroin much can be accomplished to lessen the cough which might imperil the success of the operation.

In my opinion it is a mistake to keep any cataract patient in bed longer than 72 hours and those with bronchitis, myocarditis and the very aged should be propped in bed by the end of 24 hours. Two cases of hypostatic pneumonia developing on the third post-operative day in patients compelled to lie supine have recently been reported to me by colleagues. Both ended fatally. A chronic nephritis is no contra-indication to operation. A diabetic can usually be rendered sugar free, and this end should be gained before operation is attempted. The Wassermann reaction should be made on every patient about to be operated for cataract, as typical interstitial keratitis has been known to follow operative trauma. Is it not likely, too, that low grade inflammations of the uveal tract may be due to the operative trauma plus a syphilitic taint?

While one should see that no abnormal condition is overlooked, it is worse than futile to defer operation indefinitely in the hope that essentially chronic conditions are going to clear up. If we adopt such a policy we may wait until the patient is carried out by the

undertaker, with his eyes still harboring his cataracts. The rule should be to get the patient into as good condition as possible within a reasonable length of time. Then one can operate with a clear conscience.

Let us pass, then, to conditions surrounding the eye itself. More and more I am coming to regard an eye with a clinically clean conjunctiva and no evidence of dacriocystitis as an eye that may be safely operated. It is not necessary before this audience to state that the conjunctival sac cannot be rendered free of organisms. As a routine I have all eyes cultured prior to operation. Provided the eye is clinically clean, I am not deterred by the report that a few colonies of staphylococci or Xerosis bacilli develop on the culture medium. I have not hesitated to operate in the presence of a chronic conjunctivitis if repeated cultures showed nothing but staphylococci. Operation should be deferred if the culture shows streptococci or pneumococci.

Cataract operation in the presence of dacriocystitis should not, in my opinion, ever be performed. Neither tying off the canaliculi—a temporary expedient—nor sidetracking the secretion into the nose, will insure that pyogenic organisms may not find their way into the conjunctival sac and thus infect the operative wound.

Nothing short of removal of the sac or its complete destruction by cauterization should be employed in these cases. Some days or weeks prior to operation the palpebral conjunctiva should be freed of caseous and cheesy deposits and minute cysts by puncture and curettage. The Meibomian ducts should be emptied by thumb and finger pressure and massage. I am not in favor of this maneuver the night before or immediately prior to operation as the manipulation required to evacuate the ducts incidentally traumatizes the palpebral mucosa, thus giving rise to traumatic conjunctivitis.

What, if any, antiseptics should one use in the eye? For a long time, realizing that one could hope only to diminish, not eradicate, the microorganisms in the conjunctival sac, I merely irrigated the sac with boric or normal saline solution. Later, I doused the conjunctival sac freely with bichloride 1/6000, ten minutes before operation, flushing out the epithelial debris with normal saline immediately preceding operation. About two years ago I was greatly impressed with C. H. Bell's account of 400 intra-ocular operations without an infection. His method consists in instilling a 1 per cent. solution of AgNO_3 into each conjunctival sac two hours before operation. When the patient comes to the operating table the accumulated mucus is washed out with normal saline solution. His contention is that

"silver nitrate furnishes a marked degree of stimulation to the conjunctiva and in that way leukocytosis is produced and protective antibodies are formed which take care of the microorganisms if any are present." I tried this method in several cases, always with uniformly good results, but the reaction was great and the patients were certainly rendered very uncomfortable. So I now follow Verhoeff's suggestion and use a 4 per cent. solution of protargol (if this is made up with sterile normal saline solution it is surprisingly unirritating) twice prior to operation.

I formerly scrubbed the ciliary bases with benzine just prior to operation. This I have abandoned, as I never could convince myself that it was any particular safeguard, and if a drop escaped into the conjunctival sack, it caused a great deal of conjunctival congestion. In some cases I have painted the ciliary margins with 2 per cent. Tr. Iodine.

If spastic entropion is present, the lashes may invert under the bandage and, rubbing against the conjunctiva, cause a conjunctivitis. A good preventive is to paint a line of contractile collodion on the skin of the lower lid parallel to the palpebral margin, to include the central cilia.

PRELIMINARY IRIDECTOMY.

One of the earliest precepts of ophthalmic surgery that I learned was this: If you want to be doubly safe in your cataract work do a preliminary iridectomy; and always do it if the patient has but a single eye. In my early experience I performed preliminary iridectomy in one-eyed individuals, in all complicated cataracts, and in cataracts in highly myopic eyes. The results were so exceedingly satisfactory—prompt and uncomplicated healing of the iridectomy wound, and great simplification of the extraction—that I have now adopted it as a routine whenever I can get the consent of the patient. Another advantage is that one may hasten the maturation of an unripe lens by massaging the lens capsule direct, or through the cornea. Preliminary iridectomy is not necessarily a hospital operation (although I prefer it to be) but may be successfully carried out in the office or out-patient department. The extraction is done four to eight weeks after the iridectomy.

MANAGEMENT OF IMMATURE CATARACT.

It has been a surprise to me that the method of Homer Smith—capsulotomy from 8 to 24 hours prior to extraction—as a means of rapidly ripening immature cataracts has not been more widely followed. It is probably true, as recently pointed out by Greenwood, that occasionally preparatory capsulotomy does not pro-

duce the ease of extraction expected, due to the presence of unusually sticky cortex. My experience with this method is limited but satisfactory, and personally, I have never encountered the complication suggested by Greenwood. The secret of success, it seems to me, is to make a bold criss-cross, allowing the point of the knife not merely to cut through the capsule but actually to penetrate the upper layers of the cortex. Thus an opening adequate to admit aqueous, which, as it were, dissects off the capsule in the interval between operations, is made. At the extraction it is not unusual to find that the lens is lying so loosely in its capsular bed that, without pressure by the spoon, or any squeezing on the part of the patient, it delivers itself.

SPECULUM VS. LID RETRACTORS.

Personally I prefer a speculum to lid retractors in the majority of my cataract operations. I prefer one such as Skeel's or Wilder's modification of Murdock's, that can easily be grasped by the assistant and raised away from the globe should it become evident that the patient is getting out of hand. I am convinced that much squeezing is due to insufficient anesthesia and hence inject subconjunctivally cocaine 1 per cent. or novocain 1 per cent. ten minutes before making the incision. In order not to interfere with the formation of a conjunctival flap, I make the injection below. In this manner complete anesthesia is insured for all tissues of the eye cut, touched or grasped in the course of the operation. Another reason for squeezing is nervous tension on the part of the patient. There are two prophylactic measures of value: first, sedation; second, complete command of the patient by the operator. I have always refrained from employing opiates as sedatives prior or subsequent to cataract operation for fear of nausea and vomiting. A chloral hydrate bromide mixture is nearly as efficacious, but has the possible disadvantage of upsetting the stomach. I have found an enema of chloral hydrate (chloral hydrate, sodium bromide AA gr. xxv, starch water q.s. ad. 5*iii*) injected one hour prior to operation extremely valuable as a sedative. An operator who has confidence in himself will inspire confidence in his patient. He should go about his work in a calm and straightforward manner as if a cataract operation was just a part of his daily routine. Patients are quick to discern that an operator is nervous and even if he is not manually unsteady his state of mind is readily appreciated by the patient who has nerved himself to undergo what he conceives to be an ordeal.

In view of the necessity of a certain amount of speech—words of encouragement, command

or admonition—it is necessary that the operator wear a mask to prevent droplets of saliva entering the field of operation.

GENTLENESS OF MANIPULATION.

It is a surgical truism that a lacerated wound that is also contused is far more prone to infection than one that is merely lacerated. The operator who nonchalantly sticks a knife into an eye, as though he were spearing a potato, and then proceeds to cut out, or rather "drag out" without any appreciable forward or backward movement, will to some extent bruise and dislocate the tissue elements. Delicacy of manipulation does not imply undue slowness in operating. Steady progress can always be made, but that is far and away removed from the slap-dash methods of the operator whose mania for speed blinds him to other more vital considerations. Assuredly speed in operating has no place in ophthalmic surgery.

The incision is made at the limbus and I always endeavor to secure a good-sized conjunctival flap, which, I am sure, is a safeguard against infection. In performing the iridectomy the iris should be withdrawn slowly and only far enough to insure a clean and peripheral iridectomy. The capsule forceps should be brought in contact with the surface of the lens and sunk back with just enough pressure to insure a grasp of the capsule and the anterior layers of the cortex. The removal of a generous slice of the capsule will permit the lens to slip out with the minimum amount of pressure. Great care should be taken to replace both angles of the coloboma. Prior to smoothing the flap into place every shred and blood clot should be carefully removed from the wound and conjunctival sac.

CAPSULE FORCEPS VS. CYSTOTOME.

I invariably endeavor to remove a large piece of the anterior capsule with the capsule forceps. This is readily accomplished in all cases of mature cataract in which the nucleus is hard and the cortex firm or at least not fluid. But in the immatures, and especially in the hypermatures and Morgagnian cataracts, the capsule slips away from the teeth of the forceps and then a cystotome must be resorted to. Any of the standard types of capsule forceps may be used, but I am inclined to favor the peculiar serrated forceps of Ewing, as I believe that with them one can remove the upper layers of the cortex as well as the capsule. A clean removal of the capsule and the anterior layers of the cortex is one of the factors of safety by tending to make secondary operation less frequent.

IRRIGATION OF THE ANTERIOR CHAMBER.

If, despite a preparatory capsulotomy, or if it has been omitted, there remains cortical material after the expression of the nucleus, I know of no measure more satisfactory than irrigation of the anterior chamber with normal saline solution. I have tried various types of irrigators—McKeown's, Lippincott's, the bulb syringe with a glass tip (New York Eye & Ear Infirmary model), etc., but have found none so satisfactory as the very simple one designed by Webster Fox, consisting of a small glass cylinder to which is attached a rubber tube carrying a gold-plated irrigating tip. Variations in hydrostatic pressure can readily be made by raising or lowering the cylinder. It is rare, indeed, that by appropriately directing the stream, nearly all the cortex cannot be washed out of the anterior chamber. A positive contra-indication to irrigation is a known fluid vitreous or the loss or presentation of vitreous.

AFTER CARE.

The binocular bandage is reinforced by a Ring Cataract Mask and the patient returned to bed. All voluntary movements are prohibited for 24 hours but the position of the patient is frequently changed by the nurse. The limbs are gently massaged and the back rubbed with alcohol. In the absence of ocular discomfort or pain the dressing is not disturbed for 72 hours, when a simple inspection of the eyes is made, secretion is wiped away from the lid margin and atropin 1 per cent. and protargol 5 per cent. are instilled. The binocular bandage is then re-applied for two days the patient now being allowed out of bed. On the fifth day the unoperated eye is uncovered and the patient allowed the freedom of his room. I rarely find it necessary to keep a cataract patient in the hospital longer than ten days.

Almost invariably a mild iritis—with, however, little tendency to form adhesions—is present during the first post-operative week. A persistent iridocyclitis is, in my opinion, often the result of a low grade infection. A severe acute iritis may be of endogenous origin, as in a patient with chronic cystitis who developed severe iritis with hypopyon six days after the operation. This was controlled, with excellent visual outcome, by the usual local remedies and large doses of hexamethylamin. Iritis is certainly less frequent in patients who have had the benefit of a preliminary iridectomy.

The resorption of the cortical masses is, I am sure, promoted by the use of warm compresses and dionin. If this drug is used too soon after the operation it may act as an irritant, so I do not begin it until the end of the fourth post-operative week.

DELAYED UNION.

Failure of the wound to unite may cause the operator much anxiety. Usually the simple expedient of omitting the bandage will be all that is necessary. Strong silver nitrate solution may be used but I would counsel against the use of lunar caustic. In one patient whose chamber had not reformed on the twenty-first day, despite the omission of the bandage and 5 per cent. silver nitrate, I touched the edge of the wound with lunar caustic. The following day the area treated was a large, white slough and I was convinced that I had put the finishing touches on what had been a perfectly good eye. Thanks to a kindly Providence I was spared the ultimate disaster: the wound closed and the eye recovered with useful vision.

The most dreaded post-operative event is infection. If it be not discovered in its incipiency the eye is doomed. Cauterization of the lips of the wound, sub-conjunctival injections of cyanide of mercury and intra-gluteal injections of milk are the measures that appeal to me.

I am well aware that I have by no means covered all the factors of safety in the operation for cataract. Perhaps some of you may regard some of my Factors of Safety as Factors of Danger—and, if there be any such, let him now speak. Your criticism rather than your friendly approbation is invited. It is true that we learn by our mistakes, but we learn just as much by listening to the views of colleagues whose experience has led them to conclusions at variance with our own.

626 Metropolitan Building.

METASTATIC INFARCTS OF THE LIVER, WITH
VERY UNUSUAL SYMPTOMATOLOGY

E. C. ROBICHAUX, M.D.

EXCELSIOR SPRINGS, MO.

The book-type symptom-complex of many well-known diseases holds little of theoretic interest to the student of medicine.

When one encounters a symptomatology so conflicting as to simulate a number of well-known diseases and is unable to arrive at a reasonable conclusion of the existing pathology, he has lived through an experience which will remain vividly stamped upon his memory forever. Such has been the experience of Dr. James and myself in the case of one W. J. L., a man of forty, married, with a family of two children.

He came to my office on July 5th, 1921, complaining of lumbago and sciatica. Duration, two months. History of similar attack ten years before. Had been actively engaged

on farm until two months ago. Family history unimportant.

Personal History.—Two years before he was operated on radically for carcinoma of right testicle. Dr. Farnham at that time removed the testicle and cord and chain of glands up to the renal vessels. After the operation the patient received twelve X-ray treatments. The convalescence was uneventful, and no further attention was given him until the above pains in back and sciatica arose. Thirty days ago his tonsils were removed.

Physical Examination.—A man of good build and flesh, anemic and slightly cachectic. Lungs, liver and spleen normal. Heart muscle and valves normal. Pulse 92. Appetite good. Feeling of lassitude for some time. R. B. C. 2,800,000. Leucocyte count not made. Treatment, eliminative, waters and baths.

Progressive improvement recorded from July 5th to 17th, the latter date marking the beginning of his fatal illness. On that morning I was called to give relief for a very bloated abdomen and stomach; also, some unlocalized pain in the lower abdomen. Pulse 115. Simple remedies were used at first but finally morphine was compulsory.

I did not see him again until the 19th, when he was transferred to the sanitarium. In the interim two other physicians administered hypos. On this date Dr. James and I made examination: His pulse was 144 and soon thereafter 155, thready and irregular. Temperature 103. Liver reached the umbilicus, very hard and acutely tender over the gall-bladder. The appendix was also very tender and yet tolerated considerable pressure. No rigidity of right rectus, no disposition to keep the knees flexed, no vomiting and no constipation. Leucocyte count 10,000. It was plain that the man was dangerously ill. The first impression was a ruptured appendix? Or was it the gall-bladder? How account for the very large liver which was normal two weeks before?

An exploratory operation seemed in order, but we could not reconcile ourselves to its accomplishment for it meant sure death on the table. We are happy now over this decision.

On the morning of the 20th, twenty-four hours after admission the temperature was 101.6. Pulse 136. In the evening temperature was 101.4. Pulse 124. Patient slept all night and awoke with a feeling of hunger. The liver still large and tender; the appendiceal region much less tender. White count 10,300.

On the 21st, the third day in the hospital, he was better and the white count was down to 8,700; on the 22nd, it was 8,300. The highest recorded temperature that day was 101.2,

and the pulse 124. Pain near the appendix was nearly gone and in the gall-bladder region there was no change over the preceding record. However, the observation was made on that day that the liver was diminishing rapidly in size, was softer and would soon be normal. There were no nodules felt on palpation. The patient commented on the diet restrictions saying he believed that a square meal was all he needed now. Bowel movements large and well digested. Slept well all night. Wassermann and Widal both negative.

On the 23rd continued improvement.

Saturday, July 24th, the chart records no change in the condition of the patient to warrant the suspicion of the impending crisis except the complaint that he "felt so tired all over." His pulse was then 136 against a low of 124 the day before. Temperature 101.

On Sunday, July 25th, he awoke from a full night's rest with a temperature of 101. Pulse 124. That afternoon temperature was 102.4, and pulse 144. White count was 10,700 from a low of 8,300 four days before. All tenderness was now gone from the McBurney point; the liver was scarcely palpable but over the gall-bladder it was still quite tender. Did we have a cholecystitis?

Sunday night the patient was very restless, and Monday, July 26th, at 6 a. m., temperature was 102.4, and pulse 140. At 2:30 p. m. temperature was 103.2, pulse 140. Sweating appeared at this juncture for the first time. White count 13,300. With the help of the ice bag and frequent bathing the temperature rose and fell intermittently until 104 temperature, and pulse 156, were reached.

During all of Tuesday and part of Wednesday there was not recorded a complaint voluntarily made, nor a time when the patient was not conscious and thoroughly alive to his surroundings. At 12:45 p. m. Wednesday the first involuntary evacuation occurred, slightly tinged with blood, the only one of this character. At 2:30 there was no radial pulse. Several involuntary evacuations. At 3:45 very decided pains in limbs, particularly the left. Before death the left limb became markedly edematous, not so the right.

At 5:45 the patient died. Post-mortem superficial exploration of the abdomen resulted in the following observations: The peritoneum and mesentery normal and uninjected, the cavity without fluid, the appendix long, pale and unadhered; one right inguinal gland filled with caseous material, probably T. B.; the gall-bladder with a capacity of one to two ounces, empty and uninflamed. The liver large and hyperaemic, presenting on its anterior and posterior surfaces a number of neoplastic infarcts

ranging from $\frac{1}{2}$ to 3 inches in size; one was an inch deep and when punctured exuded a burgundy colored fluid.

We regret that no histological examinations were made.

Diagnosis.—Metastatic carcinoma (with portal vein thrombosis)? We have added portal vein thrombosis parenthetically for the reason that we are not able to account for the tremendously sudden enlargement of the liver, and its equally strange recession to normal in five days time, except under this hypothesis. Passive congestion of the liver is discounted, because there was no apparent decompensation; the breathing was at all times easy and no edema appeared in the limbs until the patient was moribund.

We wish to record also the accuracy with which the white blood counts made daily corresponded with the physical condition of our patient, and also aided us, before death, in abandoning the idea that we were dealing with a pus case.

The possibility of carcinoma was never lost sight of, although it seemed to us to be more of a contributing than a causative factor in death.

SURGICAL TREATMENT OF CARCINOMA OF THE LOWER LIP*

W. E. LEIGHTON, M.D.

ST. LOUIS

A study of 412 cases of carcinoma of the lip from the surgical clinic of the Barnard Free Skin and Cancer Hospital has shown many interesting facts. Of these, 42 occurred in the upper lip and 370 developed on the lower lip. The surgical treatment of which forms the basis of this paper.

Of the total number, 396 men were afflicted with cancer and only 16 women. Nine of these women developed cancer on the lower lip and all gave a history of smoking a clay pipe. Two of these patients chewed tobacco and one used snuff. Thin, in 1878, speaks of five cases of cancer of the lower lip in women, three of whom had been clay-pipe smokers. Only 102 of the men are recorded as smokers or users of tobacco which makes one suspicious that the interne failed to note the query in all cases as to whether the patient used tobacco.

A study of the age incident of cancer of the lower lip was made in 307 cases. The following is a table showing the age of the patient when presenting himself at the clinic:

Age	Cases.
	Age
20-30 years	7
30-40 years	22
40-50 years	72
50-60 years	89
60-70 years	73
70-80 years	37
80-90 years	7
	307

The largest number occurred between the decade 50 to 60 years.

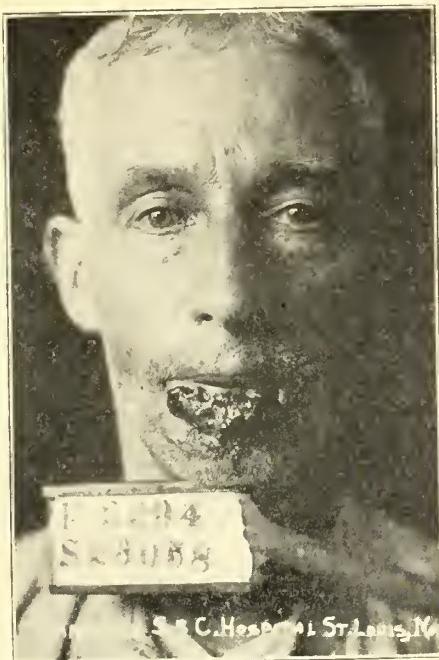
Statistics show that carcinoma of the lip is more frequent in men past middle life. Probably one of the earliest complete studies of the disease and the result following operative treatment was given by Koch who in 1881 reported 145 cases from the Erlanger surgical clinic at Bonn. Of these, 132 cases were men, 94 of whom were farmers and 12 were women, all of whom came from the country. These results do not differ materially from those reported earlier by Thiersch, Winewater and Burns who found the greater number between 50 and 60 years of age. Of 162 cases which were reported only 7 were in women. Later observers, Judd, Bloodgood, Crile, and Loos give statistics which correspond to the earlier writers. The former in 1909 reported 156 cases of which only 5 were female, and 95 of the cases were in people over 50 years of age.

Beadles reported 68 cases of cancer of the lip admitted in the Cancer Hospital at Brompton, three of whom were in women. Two of these cases were of the upper lip and one of the lower, all of which started from small pimples.

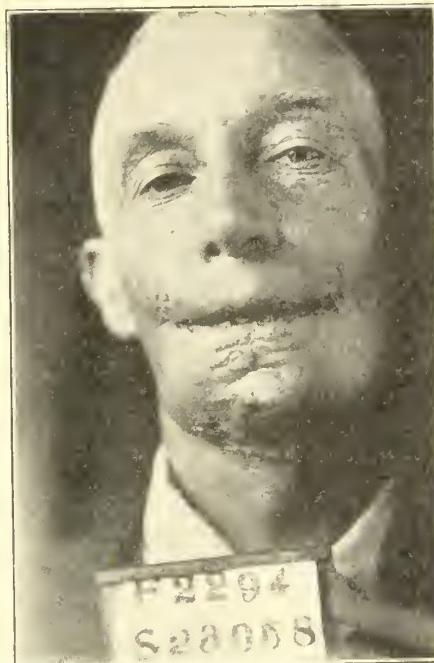
A further study was made in 279 case histories as to the duration of the disease before coming to the clinic, or rather the duration of any existing irritation. There were 119 cases of one year or under; 101 between one and five years and 59 cases of five years or more. The shortest duration was three weeks. Thirty patients had noticed trouble under six months and 89 were one year or less in duration. Of the 59 with trouble five years or more, the longest duration was 20 years. This patient had recurrent fever blisters which never quite healed. Four patients had trouble for ten years; 3 patients had trouble for 14 years; 2 patients had trouble for 16 years, and one had trouble for 17 years.

A careful review was made as to the relationship of chronic irritation and cancer. In addition to the history of 102 inveterate smokers mentioned above, it was found that 77 of these patients had been subject to can-

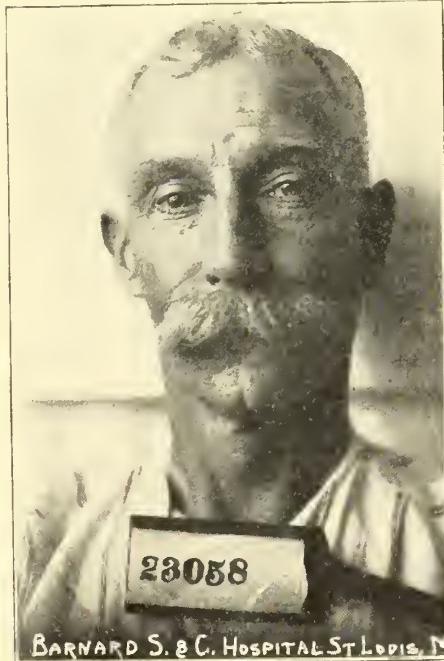
*Read at the Sixty-Fifth Annual Meeting, Missouri State Medical Association, May 2, 3 and 4, 1922.



Case 1. Fig. 1. Carcinoma of the lip. Before operation.



Case 1. Fig. 2. Three weeks after operation by the Stewart operation.



Case 1. Fig. 3. One year after operation.

cer-paste or caustics; 24 gave a history of having been injured, either by a razor, biting the lip or being struck on the lip; 15 patients had had chronic fever blisters, cracks or fissures.

Many patients with cancer of the lip come to our clinic in a deplorable condition or hopelessly inoperable. The responsibility for this inoperable condition in which they present

themselves seems to me to be dependent (1) on the quack cancer specialists who apply irritating remedies which only spread the disease; (2) on the patient who neglects to consult with his physician, or fails to take his advice of surgical intervention; (3) on the physician who first sees the case but fails to recognize the disease, or recognizing it procrastinates in seeking the advice of a surgeon or attempts superficial surgery. Several years ago in a paper before this Society on Inoperable Cancer I emphasized these factors. With these points in mind I analyzed the record of previous treatments in our last 147 cases. Eleven patients were treated by quacks with caustic plasters; 16 were treated by physicians with caustics; 6 were treated by the X-ray; 17 showed recurrences from operations in other hospitals by the usual "V" shaped incision. In only 2 of these cases were glands removed and at a second operation. Of the remaining 97, 60 were operated at our hospital; 37 failed to take our advice or else were hopelessly inoperable. In 117 of these 147 cases the exact location of the growth on the lower lip was recorded. The cancer in 26 occupied the middle of the lip; in 39 the right side; in 38 the left side, and in 4 occupied the whole lip.

Palpable glands were noted in the submental and submaxillary regions as follows: In the 26 mid-lip cancers the submental glands were involved 11 times, the right submaxillary 4 times and the left 5 times. In the 39 right

sided cancers the submental was involved 13 times, the right submaxillary 13, and the left 7 times. In the 38 left sided cancers the submental was involved 12 times; the right submaxillary 10 and the left 19 times. In the 4 cases with the whole lip involved the submental glands were involved 3 times; the right submaxillary gland 3 times, and the left 4 times.

The Mayo Clinic reports the point of origin in the middle of the lower lip 17.75 per cent. The left side 43.60 per cent. and the right side 38.64 per cent. Metastasis occurred in the submental nodes 24.76 per cent.; in the submaxillary nodes 87.61 per cent.; in the superior deep cervical nodes 7.89 per cent.; in the inferior cervical nodes 7.89 per cent.; in the external jugular nodes 63.15 per cent.; in the anterior cervical nodes 21.05 per cent.; in the parotid nodes, supraclavicular, peribronchial nodes, lung and liver, 95 per cent. each.

DIAGNOSIS

It is estimated that 90,000 patients die annually in United States from cancer. This fact alone should keep us continually on our guard less we overlook it. Again a large per cent. occur about the face; and the lower lip, especially in men, is a frequent site of cancer.

Carcinoma of the lip is one of the easiest conditions to diagnose. It is of slow development. It most frequently occurs as a papillary tumor on the vermillion border of the lip or as an indurated, irregular ulcer. The cervical lymph nodes may not be palpable for months or years. Chronicity of the local lesion is one of the distinguishing characteristics. It does not tend to heal under bland ointments and caustics usually add fuel to the flame.

Chancre of the lip is of rapid onset. The cervical lymph nodes are early affected and the local lesion has all the characteristics of the primary sore. The development of the secondary symptoms and the Wassermann should expel all doubt. Simple irritations, like fever blisters, should respond rapidly to treatment. Cracks, blisters or ulcers which do not respond readily to treatment should excite our suspicions. We are taught always to be on the lookout for syphilis. Why not suspect cancer? The deaths from this disease are appalling.

PROGNOSIS

The prognosis of cancer of the lower lip depends in some measure upon the age of the patient, the duration of the disease and the type of operation performed. As a rule the younger the patient the less promising the outcome in cancer. The longer the duration of the disease the more unpromising the result since glandu-

lar metastasis has been given a chance to develop and when once developed only a small per cent. are cured, even after most radical operations.

Warren has well stated that the treatment of cancer of the lip is a major operation and not the minor procedure which many would make it. Too frequently we find these patients operated by a simple "V" shaped operation without neck dissection. By this practice the weight of authority is discarded. One has only to contrast the statistics of the Middlesex Hospital and the Mayo Clinic to realize how inadequate are simple "V" shaped operations alone. Rountree of the Middlesex Hospital, reported 126 cases of lip cancer treated with a "V" shaped excision. In these, there were 70 recurrences. Sixty per cent. of the lip cases from the Mayo Clinic are reported alive at the present time.

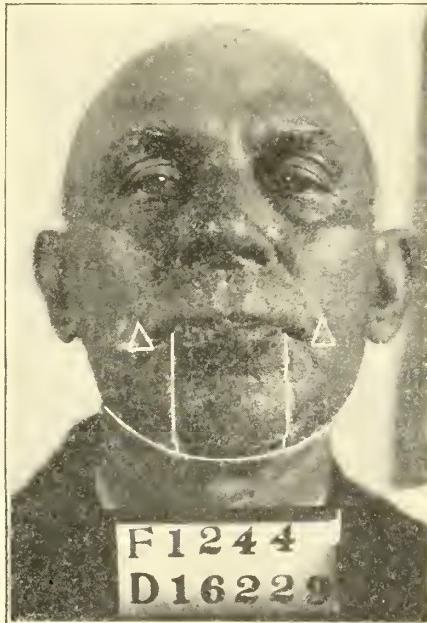
TREATMENT

Before discussing treatment of cancer of the lip it is well to understand the course along which the disease spreads for it has been truly said of cancer surgery "the surgery of cancer depends upon the ability of the surgeon to remove the lymph glands draining the cancer area." The lymphatics from the lower lip are distributed as follows: afferents pass from the outer portion of the lower lip to the chain of lymph nodes three to eight in number, situated along the lower border of the horizontal ramus of the mandible. One node, which rests upon the facial artery just before it passes over the rim of the mandible, is larger than the rest, and this, together with two others which are sometimes smaller, and lie one on either side of the large nodes, are the usual representatives of this group. Occasionally a small node remains imbedded in the substance of the submaxillary salivary gland. (The late J. B. Murphy referred to a gland which he said was always present over the mental foramen. I have not seen this described elsewhere.) The efferents from the submaxillary nodes open into the superior deep cervical nodes situated near the common carotid artery. The lymphatics from the central portion of the lower lip and integument of the chin pass directly to the submental nodes, 2 to 4 in number, situated in the triangular space included between the bellies of the digastric muscles. Each of the two principle nodes rests upon the inner border of one of the muscles. Sometimes these nodes are arranged in a vertical manner with one just beneath the chin and the other just above the hyoid bone. The efferents from the submental nodes empty into the submaxillary group and also into the superior deep cervical nodes, into which the submaxillary group also

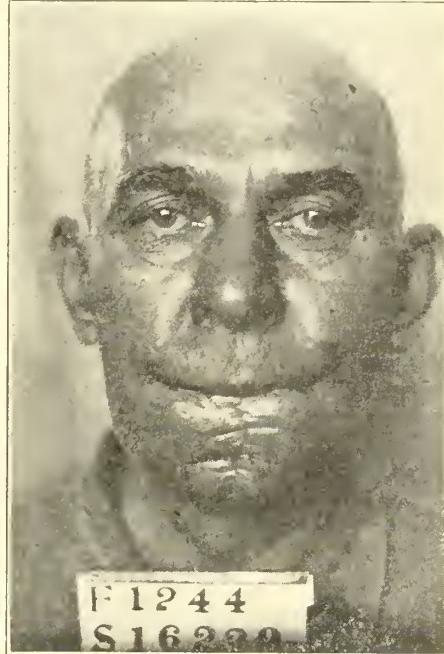
drains, situated on the internal jugular vein where the omo-hyoid muscle crosses it.

From the earliest time up almost to the present century, the usual operative treatment was a "V" shaped excision of the lower lip with or without some cheiloplastie procedure to widen the mouth and form a new lip.

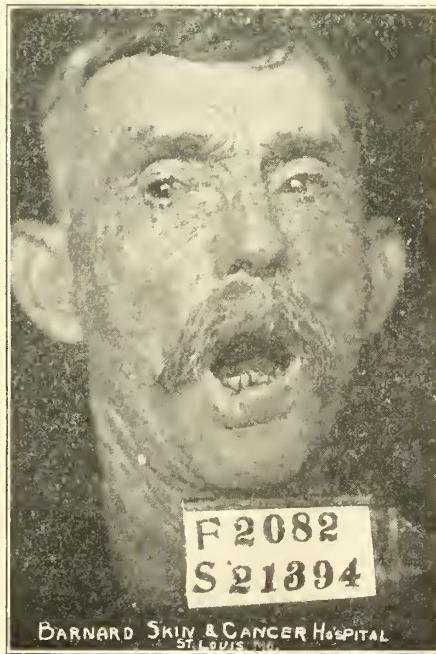
About the year 1895 we began to get evidence of dissatisfaction with the results obtained by this type of operation and the insistence that all palpable lymph nodes should be exposed and removed. The following year, I think it was, the American Surgical Association took up the question and insisted upon



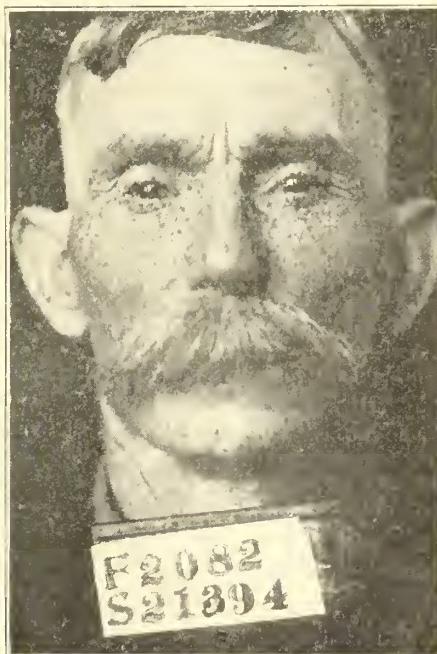
Case 2. Fig. 1. Carcinoma of the lip with the incision of the Stewart operation outlined in white. Before operation.



Case 2. Fig. 2. After operation.



Case 3. Fig. 1. Carcinoma of the lip. Stewart operation. Before operation.



Case 3. Fig. 2. After operation.

the routine removal of submaxillary and submental nodes.

In 1898 and 1899 Dowd and Grant devised new operations for a more thorough removal of cancer, and the involved glands, together with a cheiloplastie operation to restore the lip.

An operation reported about this same time but more complete in meeting the requirements of the thorough removal of the cancer and gland tissue seems to have been overlooked. In 1898 J. Collins Warren of Boston reported a case of removal of the lip, submaxillary and submental glands en masse, through a "V" shaped excision extending over and including the chin to meet an incision parallel with the lower border of the jaw.

In 1906 Mr. Cheatle reported a somewhat similar operation which was described in detail in the London Lancet.

In 1910 Dr. Stewart of Minneapolis presented a most complete operation for this disease which seems to answer every requirement for complete eradication of cancer of the lip and the lymphatics which drain it.

Of our 370 case records many show that the patient declined operation, others were inoperable for which little could be done; some were treated with X-ray or radium, and in some palliative operations were performed.

There were 152 radical operations performed. The operation most frequently used was a modification of the Cheatle or Stewart operation, and is performed in the following manner: The submaxillary and submental triangles are exposed through an incision parallel with the ramus of the lower jaw midway between the symphysis and the hyoid bone. The incision extends to the sternocleidomastoid muscle on each side and divides the skin and platysma muscles. The skin and muscle flaps are reflected and the submaxillary gland on either side freed from its bed with the fascia and lymph nodes above it. This necessitates the division of the facial artery and vein. The intervening strip of fascia, with the submental node, is freed from below upward to the symphysis. All vessels are ligated at this time in order to have a clear field not encumbered with instruments and the submaxillary wound is temporarily packed with gauze.

The lip is then attacked. From a safe point on the lip well outside the cancer the lip is divided and the incision on each side carried outside the chin down to meet the neck incision beneath the chin. The cheek flap is then dissected back to expose the glands, usually three in number, situated about the facial artery where it crosses the ramus of the jaw. These glands and fascia are freed from the jaw toward the chin. The lip and chin is then

cut away close to the bone and the whole tumor, consisting of lip, chin, fascia, submaxillary and submental glands, removed en masse.

The closure of the gap left by this wide removal is affected readily by freeing the mucous membrane from the ramus of the jaw, which allows the lip margins to be approximated in the mid-line. Several silkworm-gut sutures are used in the lip and new formed chin as tension sutures. One end of the strand is passed through rubber tubing, cut in inch lengths and the ends tied. The rubber tubing will prevent cutting by the suture. Those silkworm-gut strands which pass through the chin are made to include the periosteum over the point of the chin which prevents the lip from riding upward which it always has a tendency to do. The mucous membrane of the lip is united by fine catgut sutures, both in the mid-line and along the margins of the alveolar mucous membrane. This prevents leakage of saliva and also tends to fix the lip in its normal relation to the jaw.

To prevent the formation of the so-called sucker-mouth it is usually necessary to perform some form of cheiloplasty. The best method seems to be that of incising into the cheek from the angle of the mouth. The incision passes only to the mucous membrane of the cheek. The mucous membrane is divided at a higher level so that it can be folded over to form a new vermillion border for the lower lip. To remedy the puckering caused in the angle of the upper lip a triangle is removed in the line of the ala nasi fold after the method suggested by Burow and this defect, when sutured, will fall in the above mentioned fold.

The neck wound is then sutured with two rows of sutures, a continuous catgut suture for the platysma and a continuous suture for the skin. Interrupted silkworm tension sutures are sometimes employed. Drainage is usually provided for by a piece of folded rubber dam at the angles of this incision.

CONCLUSIONS

The advantages claimed for this operation are:

(1) Theoretically such a well planned operation should give the maximum of cures.

(2) No attempts have been made to determine the curability of this operation at our hospital for the simple reason that even with the services of a social service worker we are unable to get many patients to return for observation. When once relieved of their trouble charity patients are notoriously unappreciative of one's efforts in their behalf. Less than 10 per cent. respond to our requests for information as to their health.

(3) Two different writers from the Mayo Clinic have made the statement that they have never observed a recurrence on the point of the chin between the lip incision and the neck incision. In one per cent. of the cases on admission we have seen such a recurrence. The operation which has been outlined will obviously prevent such a condition.

(4) It permits a complete removal of the growth together with the entire chain of lymphatics which drains the local lesion.

(5) The lymphatic channels are not cut across as they are in every other type of operation for carcinoma of the lip.

301 Humboldt Bldg.

CONTROL OF DIPHTHERIA IN MISSOURI*

P. G. HURFORD, M.D.

ST. LOUIS

It was considerably over a hundred years ago that Jenner gathered together the various observations as to the relation of cowpox to smallpox, and proved the value of vaccinia in preventing smallpox in man.

Except for disproving his belief in the permanent immunity it conferred, and the improved methods in procuring, keeping and applying the vaccine, no gain has been made in the knowledge of prevention of smallpox since then. And yet, over one hundred years later, we are still fighting smallpox, fighting to get people vaccinated, shouting in order to be heard in a wilderness of indifference and unbelief—and this with epidemics of smallpox occurring in this or that city every year or two. This is the state of affairs with a disease that we know is preventable.

When one thinks this over a little he may come to some realization of the difficulty of trying to control diphtheria by immunization.

Of course we know perfectly well that diphtheria is lessened very little in frequency by quarantine regulations of any sort. It is questionable whether it is lessened at all. Certainly the most manifest effect of quarantine regulations is the resentment on the part of those who are regulated. And the means of evading and nullifying the quarantine laws are so numerous as to make them much less effective than they appear to be.

Undoubtedly diphtheria is much less prevalent in general now than it was thirty years ago. And of course the use of antitoxin is largely responsible for this. More exact diagnosis through the more general use of cultures has had its effect. Atypical cases are encoun-

tered frequently and are now often recognized where formerly they were disregarded.

But with all these advantages over former years diphtheria still exacts its yearly toll of 12,000 deaths in the United States (12,551 in 1919).

A decided stimulus has been given to those particularly interested in the prevention of disease by the development of a test for diphtheria immunity or susceptibility as the case may be. And this has been followed by a means of rendering persons immune to diphtheria. I do not propose to burden you by a repetition of the details of this test, nor how the toxin-antitoxin administration was developed, nor with the proofs of prolonged immunization resulting from it.

My own belief is that the resulting immunization is complete, the injections harmless, and the immunity probably lasts long enough to carry a child past the danger period, and perhaps it lasts a lifetime. The more work there is done with it, the more certain does it become.

The control of diphtheria then appears to be a very simple matter. All that is necessary is to inject the toxin-antitoxin into every infant after six months of age. And the disease will be exorcised in a generation, never to return. If some medical tyrant, some preventive medicine despot, should rise to power and turn this country into a medical despotism, he might see this result within his reign. But that sort of doctor does not go into politics as a rule, so the control of the disease probably will not be effected in that way.

We know how hopeless it is to try to persuade the people of any community to have their children or themselves inoculated to prevent anything at all. Some will and some will not, and that's the end of it. The possibility of co-operation to the extent of having every child in the country inoculated is so remote as to be inconsiderable. But a start, at least, has been made in St. Louis, and it is to further that and suggest certain additions that I present this paper.

Certain things have to be done by the physician himself, inasmuch as we assume that all children are not going to be immunized.

First, he must take cultures of every suspicious case and either examine them himself or have access to some quick source of confirmation that will determine the presence or absence of the Klebs-Loeffler bacillus.

Second, he must isolate as completely as possible every suspicious or positive case. His advice, which should be given in great detail, is often more effective than the health department regulations on the subject.

Third, he must institute the only treatment that will control the disease, and must do it

*Read at the Sixty-Fifth Annual Meeting, Missouri State Medical Association, Jefferson City, May 2, 3, 4, 1922.

promptly and effectually. This requires good judgment as to the manner in which the antitoxin is to be used. I insert here my belief that the best results are to be obtained by a very general use of intravenous antitoxin, usually associated with intramuscular at the same time, if one hesitates to give a very large intravenous dose. There should never be any necessity for giving a second dose. The cases that start in with a high temperature and the signs of a severe illness are just the ones where the intravenous route is essential; and yet they are the cases cited by the opponents of this method of using antitoxin as making it too dangerous. I have never seen any permanent ill-effects in any of these cases from the use of antitoxin given intravenously; and yet I have seen many children die of paralysis of heart or respiration a week or so after "getting well" of the diphtheria by means of subcutaneous or muscular injections of antitoxin, injected the first or second day of the disease. I have never seen that occur following the use of intravenous antitoxin when it was used the first or second day.

Fourth, the physician should advise every parent to have the children from six months to six years of age inoculated with toxin-antitoxin, and every child from six to twelve years tested for susceptibility. In private work I prefer to inoculate young children without a previous Schick test. The frequent visits necessary in making and examining the test militate against its use.

The City or the State.—We know of course that the state is practically impotent in any matter of this sort. At some future time power may be vested in a health board that may be used to control a controllable disease. At present, there is no reason even for discussing it.

Municipal government has only a police power control, but it has two levers with a certain moving force if they will be exercised. One is the supervision of the schools and the other is the money to supply material and personnel for the control of disease. In St. Louis both of these means have been used, each of them partially. Persuasion has been used in the school by means of instructive pamphlets and has resulted in immunizing about 14,000 children, and, through example, probably immunizing about 3,000 more. The city furnishes the material and city physicians inject it into whomsoever applies for it.

But that is not enough. This inoculation should be made compulsory for all school children who are not immune, just as is anti-smallpox vaccination. And material both for treatment and for immunization should be free on application of physician or physician's order.

In Illinois antitoxin is furnished free to any resident of the state. This should be done in Missouri. And the toxin-antitoxin mixture should be furnished free as well, to be administered by the family physician if the family so desires.

In medical and surgical practice men become famous, prosperous, envied, because of some new point in diagnosis, some new successful method of operating or of treatment, any item of which will save a few lives, or render, comparatively, only a few people more comfortable. Here we have a method of saving thousands of lives—saving thousands of dollars to people who are not able to spend it without pinching, and preventing human sorrow and misery by wholesale. But there will be nothing spectacular about it. No individual physician will be credited with having snatched a certain child or number of children from the jaws of death; there will be no blaze of community or national glory enveloping the man who works for the use of a preventive measure of this sort, no matter how many lives he is instrumental in saving. His only satisfaction will be reading, year after year, the bare, uninspiring figures that show the lessening of the death rate from diphtheria.

I will give an instance of the general attitude toward the physician who cures compared to the physician who prevents. If, in a family, there are two or more children attended by two different doctors (I take care of one of the children in several families where this is true) one of whom is an advocate of the use of toxin-antitoxin and the other is not or is indifferent to it, there will be naturally one child who is immune to diphtheria and another who is not. At any time later the susceptible child develops diphtheria and is seriously ill with it; his physician treats it intelligently, and after days of fear and suspense the child is well. The gratitude and admiration of the family are centered in the doctor who cured the sick child; not a passing thought of the one who would have prevented the illness had his advice been followed.

With smallpox vaccination, the physician is considered neglectful if he fails to vaccinate the children under his care. It should be so with this other preventable disease. If parents reject the suggestion then the responsibility is on them.

But it is the job of the physician to get all these things started, and in particular to bring about a state of mind in the general public that will make it demand this protection for children. In the large cities, at present, there is a general demand for smallpox vaccination, even though very many persons, through ignorance, neglect or prejudice, are not vaccinated. And this has come to pass through the teach-

ing of the general public by physicians. The newspapers do nothing constructive whatever in this sort of work—usually quite the reverse. However, they do publish notices sent them by the health department heads and local lectures of sufficient importance. Unfortunately, their idea of importance is likely to be distorted. I have never seen a newspaper editorial dealing with the subject advising people to favorably regard a medical article elsewhere in the paper. Newspapers open their medical columns, as a matter of news, only to ridiculously impossible anti-fat tape worm stories, babies born to seventy-six-year-old women and the death from tetanus of a vaccinated child, never noting any other death from lockjaw. The newspaper can be dismissed as an ally in progressive medicine.

Municipal governments will usually not act without very strong and continued persuasion. Cities with well organized health departments will do as well as they can.

But public opinion must be moved to the point of acceptance of the only effective means of preventing diphtheria. There should be a committee of the Missouri State Medical Association to enlighten the public, and to assign territory in the state to certain men, either men in the locality or visitors, as the case might be. In what respect is this of less importance than the control of cancer? You all know of the interest the Association takes in that. Lectures, pamphlets, cancer week, etc. And yet diphtheria we know is something we can get results from. The State Association has no diphtheria committee.

This is a good job for the newly organized pediatric society. It is a good thing to start on. If it proves successful it will justify the organization of the society; and the society should be quite able to do this itself, independent of the state organization. Any details of procedure in one locality or another can be worked out when the time comes. They are simple. The one thing necessary is to get the attention of the people and then to inspire belief in the effectiveness and harmlessness of the procedure. The state or county or city will supply the material and the personnel when it is necessary if the public comes to appreciate the value of it.

416 Wall Bldg.

ABSCESS OF THE BRAIN*

WM. NELSON, M.D.

ST. LOUIS

The subject of abscess of the brain should be of interest to all of us, not only on account

of its incidence but also on account of the frequency of our failure to recognize the condition at a time when the life of our patient could be saved. It is my opinion that if we examine our patients carefully, taking into consideration the history, note carefully the sequence in development of symptoms and physical signs, and properly correlate our findings, the diagnosis of abscess of the brain will be made in many more cases in the future than it has in the past. Formerly we seem to have been reluctant to make the diagnosis until the patient's chances for recovery have been lost from ventricular inundation by rupture of the abscess, or the development of purulent meningitis from extension to the meninges, in the latter case frequently missing the diagnosis from the overlapping of meningeal symptoms due to meningeal involvement.

The diagnosis of abscess presents greater difficulties and requires more experience and more judgment than does brain tumors and cysts. The problem confronting us is, (a) whether or not an abscess is present, and (b) to determine its location. I admit that in some cases this is extremely difficult, especially in latent or chronic abscess, but if we are careful to consider every detail and the sequence of development of symptoms and physical signs I believe we will be able to diagnose the majority of them. Too much stress cannot be placed upon the accuracy of history taking and careful physical examination of the patient, for it is so often the sequence in development of the symptoms as well as the combination of them that gives us a clew to the presence of an abscess.

The subject of abscess of the brain is even more important than the subject of tumor; for, whereas only a small percentage of the latter are amenable to surgical treatment, every case of abscess of the brain, at least theoretically, is operable and without surgical intervention is doomed to death.

Bergmann divides abscess of the brain into four groups, according to their origin:

1. Traumatic abscesses produced by an open scalp wound or fractured skull.

2. Abscess resulting from purulent inflammation of bone or bony cavities: (a) otitic abscess; (b) rhinogenic abscess; (c) abscess due to caries of the bones of the skull.

3. Tuberculous abscess.

4. Metastatic abscess.

To this classification should be added a fifth group, which for want of a better name we will designate idiopathic. That there can be no idiopathic abscess in the sense of an absence of some cause for pus formation I am willing to admit, but we know that we have primary brain abscess which cannot be grouped under any of the preceding heads. It is im-

*Read before the St. Louis Medical Society, February 14, 1922.

portant to remember this in making a differential diagnosis. Martin who has done considerable work along this line points out four cases of Strümpell's which were observed during a cerebrospinal meningitis epidemic in which no other cause could be found.

Etiology.—In a general way we may say that all the causes of infective sinus thrombosis and localized cerebritis may be adjudged factors in producing abscess since the first step in its development is inflammation. Bergmann claims that without the streptococcus pyogenes aureus there can be no abscess and if this is true the source of infection should be demonstrable. This, however, is often difficult and if Bergmann's contention be true the strictly tuberculous and idiopathic abscesses are myths. Suppurative middle ear disease furnishes almost two-fifths of the cases; head injuries about one-fourth, and about one-sixth of the cases are due to general pyemic states. Of this last group purulent pulmonary disease, such as gangrene, abscess, emphysema, bronchiectasis, etc., supply the majority. Males are about three times as often affected with brain abscess as females and are five times as frequently affected by those resulting from trauma. More than one-half the cases occur between ten and thirty years of age. It is stated by Koerner that in Prussia about five per cent. of all deaths between the ages of ten and twenty are due to cerebral complications of otitis, principally abscess.

Pathology.—The most common seat of brain abscess is the temporosphenoidal lobe, possibly due to the relation of the venous circulation of this part of the brain and middle ear with the petrosal sinuses. In decreasing order of frequency is the cerebellum, centrum ovale, pons, the occipital lobes, the parietal lobes and the frontal lobes. While it is true the invasion pathways may be by the arterial route the sequence of relationship between middle ear disease, sinus thrombosis and abscess should cause us to consider the venous route a probable one for the entrance of the pyogenic bacteria. Koerner who has given us the most important contribution in brain abscess complicating middle ear disease says that in one hundred nine autopsies of otitic brain abscess the temporal lobe was healthy in only fifteen. He has demonstrated that if we know what part of the bone is diseased we can definitely locate the abscess. In forty abscesses, thirty-eight times the seat of the abscess was immediately beneath the diseased bone. Koerner also demonstrated the fact that otitic abscesses are more frequently on the right than on the left side.

Frequently the abscess is single and varies in size from a pea to a lemon or larger. In

the region where latent abscesses occur, especially the frontal and occipital lobes, they may attain considerable size and contain several ounces of pus. When the abscess arises from purulent lung disease or septic endocarditis the left side of the brain is more often affected. Very often multiple abscesses are encountered and in the metastatic form there may be numerous small ones. Relatively the gray matter of the brain is less vulnerable to abscess than the white matter, and the cortex may often remain intact over an extensive underlying abscess. The majority of abscesses are encapsulated but the very acute, rapidly developing ones, are not as a rule. The cyst wall when present is made up principally of neuroglia which thickens and becomes of a horny consistency as its age advances. The surrounding brain tissue is more or less softened, and if the abscess is of rapid formation there is considerable breaking down of the cerebral tissue. Rupture of the abscess by the gradually increasing contents which ultimately happens inundating the brain tissue, or breaking into the meninges setting up a purulent meningitis, or flooding the ventricles promptly terminates life.

Symptoms.—If we divide the symptoms of brain abscess into three groups it will enable us to obtain a clearer understanding of the condition. (1) Symptoms due to deep-seated suppuration; (2) those due to increased intracranial pressure; and, (3) those due to focal invasion of the brain. Under the first group we would have the symptoms of deep-seated suppuration in other parts of the body, e. g., fever, chilly sensations, sweats, malaise, loss of appetite, all of which may remit and exacerbate. This change in the manifestations is due to the successive increase in the size of the abscess. The fever in the early stages may not reach more than 101 degrees F. In the latent forms the temperature may not be elevated at all and McEwen was first to call attention to the frequency of subnormal temperatures. In the metastatic abscess the general symptoms will be of little service to us on account of the pre-existing suppuration. 2. Symptoms due to increased intracranial pressure: In the latent stage the sensorium depends upon the amount of intracranial pressure. There may be very little increase in the intracranial pressure since abscess is unlike tumor in that respect. Tumor by its growth compresses the brain tissue, while abscess liquifies, destroys and replaces it. A slow pulse, other causes being absent, is always suggestive of increased intracranial pressure, and this is especially noticeable in the latent stage. Later, when the development has become more acute the pulse may be rapid accompanied by somnolence,

mental hebetude, delirium, etc. Lumbar puncture may give us definite evidence of increased intracranial pressure. Optic neuritis is frequently present but not so marked in degree as in tumor and, especially in the latent form, may be absent. If we consider the changes going on in the brain tissue this is easy of ex-

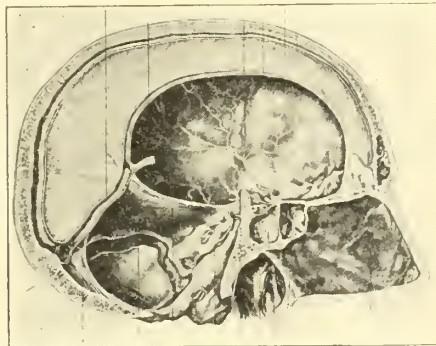


Fig. 1. Showing relationship of venous circulation of interior of skull to the brain.

planation. Optic neuritis is more frequent in abscess of the frontal lobes. 3. Focal symptoms: In a great many cases we must rely largely upon the focal symptoms for the diagnosis. If the abscess is in the psychomotor or frontal regions we will frequently have Jacksonian epilepsy followed by a hemiplegia, or monoplegia. If the temporo-sphenoidal lobe is involved speech may be affected. Involvement of cranial nerves, cerebellar symptoms, especially ataxia, aphasia and other localizing signs should be sought for. One thing I want to lay particular stress on and a sign that has been present in most of the cases I have seen is a severe localized headache. This circumscribed headache is usually complained of severely by the patient, and it is usually at the seat of the abscess.

Diagnosis.—The diagnosis of cerebral abscess depends very largely upon the history or presence of trauma; or of a suppurative condition about the head and face; or a chronic suppurative otitis media or antrum infection; or purulent pulmonary disease. Any of the preceding conditions followed by headache, vomiting, stupor, slow pulse, delirium, etc., means encephalic involvement. These symptoms are common to meningitis and abscess so localizing signs become important. If we bear in mind the pre-existing pathological condition, study carefully the sequential development of the symptoms, and give proper credence to focalizing signs I believe we will go a long way toward increasing the number of cases diagnosed. When the diagnosis is determined prompt surgical intervention should be instituted. Of all encephalic dis-

eases abscess promises the best results to surgical procedure.

Treatment.—The treatment of traumatic abscess should be prophylactic. All scalp wounds and fractures of the skull should be treated with the greatest aseptic and antiseptic precautions. All middle ear suppuration should have careful attention. All obstruction to the outflow of pus should be removed as granulations in the auditory canal sometimes cause a damming up of the pus in the canal. When the abscess is located it should be evacuated and free drainage instituted. All other measures are inadequate.

History with autopsy findings of a case of abscess of the brain.

The patient, a cement worker, aged 46 years, entered the St. Louis City Hospital on November 15, 1921, and died on November 19, 1921. His family history is negative. Personal history had the usual diseases of childhood. Also had malaria, typhoid fever and influenza. Has had fair health for the past several years. Was operated upon at the age of 21 years for bubo. Denies lues. Had gonorrhea several times in early manhood. About fifteen years ago had a suppurative middle ear infection on the right side which has discharged at intervals since. His hearing has been impaired since the infection. Formerly drank to excess. He came to the hospital in a stuporous, semi-delirious condition. Response to interrogation was slow and obtained only by repeated questioning. Complained of intense pain in right temporoparietal region and inability to walk properly, stating that he reels in walking and is troubled with dizziness. Has vomited several times during the past two weeks. Bowels are costive.

From his wife the following history was obtained:

About one month ago he began having dizzy spells. The spells came at irregular intervals at first but later the dizziness seemed to persist continuously.



Fig. 2. Cerebellum, showing abscess of vermis in case reported.

She noticed a difference in his gait and he seemed to reel in walking. About two weeks ago he began to have headache that soon became very severe with a tight feeling in the head and occasionally a sharp pain darting toward the right ear. He had loss of appetite during this time and was unable to work. His condition grew steadily worse until he became somewhat stuporous and the headache became more severe. He also vomited frequently and

seemed to have fever. Finally his physician advised him to go to the hospital.

Physician examination revealed the following abnormal findings: Argyl-Robertson pupils, right facial paralysis, impaired hearing on right side, rigidity of neck, tendency to somnolence, mild delirium and vomiting. He had a temperature of 101.2 degrees F.

On the morning of November 16, about 16 hours after admission, stupor and rigidity increasing, suggestion of Kernig's sign, no change in eye findings. Lumbar puncture gave turbid cerebrospinal fluid which was under considerable pressure. Wassermann reaction on blood and spinal fluid was positive. Considerable number of polymorphonuclear leucocytes in spinal fluid. Smears and cultures from fluid did not show presence of any bacteria. Cultures from blood did not show any bacterial growth. A moderate leucocytosis was present.

Post-mortem findings: Suppurative (old) middle ear disease on right side, with an abscess of the cerebellum involving the vermis and a small necrotic spot with softening in right temporosphenoidal lobe with marked localized meningitis. The tentorium and falx cerebelli were bathed in a thick, greenish yellow pus in the region of the abscess. Examination of the pus revealed the presence of the diplococcus meningitis.

1483 Union Blvd.

POSSIBLE RISK IN MANIPULATION OF DISEASED STOMACH

G. B. LEMMON, M. D.

SPRINGFIELD, MO.

The perforation of a gastric ulcer in a doctor's office is sufficiently impressive to cause some speculation. It is natural to inquire, in such a case, if any part of the diagnostic procedure was responsible. I have wondered especially whether there could be any hazard connected with the manipulation of the barium filled stomach behind the fluoroscopic screen.

It has long been taught that the palpation of a stomach suspected of ulcer should be done with the utmost gentleness. For instance, Aaron¹ says: "The epigastric pain is increased on pressure. Regarding the inadvisability of exerting much pressure in testing the sensibility at this spot, Brinton advises caution with respect to the pressure test; not only must it be applied with great care and delicacy in the first examination of a supposed case of gastric ulcer, but, as a rule, we can scarcely be too reluctant to repeat it. Its effects are sometimes so injurious that it is necessary strictly to prohibit the patient from all manipulations of the epigastric region, as well as from all pressure produced by dress or work."

Yet it is true that the roentgenologists find it necessary to use deep pressure and massage in fluoroscopy, and that their manipulations are at times rather vigorous.

1. Aaron, C. D.: Diseases of the Digestive Organs, Philadelphia, Lea & Febiger, 1921.

At any rate, the following two cases are of interest:

A man, aged 54, gave an ulcer history characterized by attacks only in the spring for 14 years. There was occult blood in the stool on a bloodless diet, and occult blood in stomach contents, with 60 per cent. hemoglobin. The total acidity of the stomach contents was 66, with yeast cells present. The roentgen-ray examination revealed, on the greater curvature of the stomach, a constant spastic contracture present on the fluoroscopic screen and in the roentgenograms. The latter did not show the duodenal cap, but it was present on the screen and was normal in contour. There were no marked irregularities of the stomach outline other than that mentioned on the greater curvature; the diagnosis was ulcer of the prepyloric region of the stomach.

There was no six-hour residue. After the roentgen-ray examination, the patient went home with a friend and ate a little bread and milk. In seven hours he was back in the office to hear the conclusions in his case. As we were talking, he was seized with a sudden, severe pain in the abdomen, became very pale and began to sweat. He was moved to a hospital, where a surgeon performed a laparotomy. A large perforation was found where the roentgenologist had located the ulcer. For six days he did very well, but on the seventh grew suddenly worse and died.

A similar case was reported as Case 8222 of the Case Records of the Massachusetts General Hospital. This patient had a roentgenologic examination of his stomach, very soon followed (exact time not stated) by a perforation, from which he quickly died. The autopsy revealed a perforated ulcer just above the pyloric ring, and "much barium sulphate" still in the stomach.

704 Woodruff Bldg.

INTUSSUSCEPTION WITH LEFT-SIDED MASS. REPORT OF A CASE

E. D. TWYMAN, M.D.

KANSAS CITY, MO.

Baby Thomas Craig, age one year. An extreme case of intussusception of the ileum into the cecum, cecum into the ascending colon, ascending colon into the transverse, transverse into the descending colon, the mass occupying the left hypochondriac region and downward and being quite easily palpable before the operation.

Present History. The child had indigestion for some time. Twenty-four hours before admission he had an attack of vomiting with pain. The cramping grew increasingly worse. Castor oil and enemata were not effective and a physician was summoned. More enemata, inversion, manipulation, and finally anesthesia were tried.

No bowel action was obtained from the first, ene-

mata producing some gas and blood and mucus. The vomiting increased in severity, becoming stercoraceous.

He entered the hospital with a pulse of poor quality, 145 per minute. The abdomen was intermittently rigid but between cramping spells a sausage-shaped mass could be made out in the left hypochondriac region and downward. Leukocytes, 14,000.

Operation was made through the left upper rectus over the mass and discovered the condition stated above. It was found possible to reduce the intussusception more by expression than by traction.

There was a complete cecum mobile condition, even the ascending colon having a mesentery. There were pivotal bands in the region of the gall bladder, which, however, were rather long. The appendiceal mesentery tended to be shorter than the other bands at the base of the colon. The appendix was removed and, as the process of zygoscopy had entirely failed, the colon was anchored in its usual place by a series of fine silk stitches fastening the ascending colon and the cecum to the posterior parietal peritoneum. Stitches were also placed to block ingress of small intestines into the pocket thus formed in the ileocecal region.

Operation and closure of the wall took 35 minutes. The post-operative pulse was 160. Gas was troublesome for 48 hours, although the acute pain was immediately relieved. The bowels moved by enema the next day. There was no suppuration or drainage and the child was taken home cured on the eighth day. The principal post-operative difficulty was a bronchial ether irritation. He is still well after two years.

This serious and unusual case of intussusception is ascribed primarily to the failure of zygoscopy and particularly mobile cecum.

416 Argyle Bldg.

FRAMINGHAM COMMUNITY HEALTH AND TUBERCULOSIS DEMONSTRATION.—The Framingham Community Health and Tuberculosis Demonstration has been in active operation now for more than four years. Although the time is too short completely to evaluate the results, Donald B. Armstrong and P. Challis Bartlett, Framingham, Mass. (*Journal A. M. A.*, Aug. 20, 1921), report that most of the medical work is being done through the consultation service, at the request of physicians, and the results that have been obtained have been due to the co-operation of the physicians. The amount of tuberculosis discovered in the early part of the demonstration, through all channels, indicated that 1 per cent. of the people had active pulmonary tuberculosis. The average number of tuberculosis cases reported to the board of health in Framingham in the decade before the demonstration started was thirteen per year. During the last four years, the average number of cases reported to the board of health has been forty-three per year. At the present time (June, 1921), the number of active tuberculous cases is considerably less than at any time since the demonstration started. In the diagnosis of tuberculous disease, in all cases that have been seen by the community demonstration examiner, the diagnostic standards covering pulmonary and nonpulmonary disease in childhood and adults, were prepared for the demonstration by a committee appointed by the president of the National Tuberculosis Association. Since the demonstration opened, there have been eighteen deaths that, after careful analysis of their histories, it would seem should have been prevented or at least postponed. This number represents 19 per cent. of the total number of deaths

analyzed since the demonstration opened. During the four-year period, out of a group of 376 individuals, including active, arrested, early and advanced disease, 21 per cent. died. Those whose deaths were classified as preventable or postponable constitute 4+ per cent. Consequently, the percentage of the total that might be considered to represent the irreducible fatality rate for such a representative group of tuberculous individuals over a period of four years would be 21 per cent. minus 4 per cent., or 17 per cent. The chief factors that seem to be responsible for the late discovery of tuberculosis cases which give to the community every year advanced and dying patients that have not been known or treated for tuberculosis in the early stages of the disease are: the recluse type, which seems to be the main type, never receiving any medical attention; failure of patients to seek medical advice early, or, if they do, not to give the physician sufficient time to make a diagnosis; occasional failure of physicians to detect disease early; failure of both physician and patient to use all of the services at their command for early diagnosis of tuberculous disease; lack of complete annual medical examination, and lack of annual factory and school examinations.

SYPHILIS AS A RURAL PROBLEM.—The art of treating syphilis, Walter James Highman, New York (*Journal A. M. A.*, Aug. 20, 1921), says is something that only the seasoned can master. There is no absolute routine. Each patient presents peculiar questions which lend themselves to fine appreciation only by those of rich experience, but the first step is simplification of method. So far as the problem is largely a rural one, this is the most important step. The situation may be compared with that in obstetrics. If every physician called to a confinement were a Marion Sims there would be fewer accidents, but for the average case, the average alert practitioner will do. After all, the majority of presentations are left occipito-anterior, and the majority of cases of syphilis, were it only known, have the same relative simplicity. When called on, the average physician can perform a low forceps delivery; when called on, he should be able to treat the ordinary case of syphilis by approved methods. Medical schools giving proper training, medical centers co-operating with rural districts, the simplification of technic rather than increased complexity, will render this possible. Mahomet graciously accommodated himself to the mountain in deference to established geographic conditions.

A REPORT ON PNEUMOCOCCUS INCUPLATION IN NEW YORK STATE INSTITUTIONS.—G. W. McCoy and H. E. Hasseltine, Washington, D. C.; Augustus Wadsworth and Mary B. Kirkbride, Albany, N. Y. (*Jour. A. M. A.*, Sept. 30, 1922), record the results of a study of the practical value of prophylactic inoculation against pneumonia among the inmates of certain New York State institutions, a study which was conducted jointly by the Hygienic Laboratory of the United States Public Health Service and the Division of Laboratories and Research of the New York State Department of Health. While the results are far from satisfactory and do not permit drawing any definite conclusions, nevertheless, they do show that a relatively large number, if not proportionately an equal number, of cases of pneumonia developed after inoculation. Furthermore, they show the development, in the inoculated group, of pneumonias incited by the three fixed types of pneumococcus used in the vaccine.

**THE JOURNAL
OF THE
Missouri State Medical Association**

MARCH, 1923.

EDITORIALS

THE JOPLIN MEETING—MAY 8-9-10,
1923

The Sixty-Sixth Annual Meeting of our Association is rapidly approaching and the reports from Jasper County Medical Society indicate effective preparations well advanced for an unusually entertaining session, and the activity of the program committee promises a curtailed although highly interesting scientific session.

There is a very general sentiment among the members that our annual sessions would be greatly benefited by the inauguration of clinical work at the meetings. The members in Joplin, Carthage and Webb City are preparing to meet this demand at the Joplin session. While the hospital facilities are not extensive in those three cities, nevertheless there promises to be a very creditable clinical session.

As Joplin is peculiarly well situated to give the members a view of beautiful scenery and exhilarating excursions to surrounding territory, the members of the committee of arrangements are planning to "show off" their city and its attractions in such a way as to entertain the visitors in a manner that they will remember with delight and pleasure.

The golfers are urgently invited to bring their implements of war. There are two splendid links; the Oak Hill, a nine-hole private course, and the municipal course of eighteen holes, both of which will be turned over to the visiting physicians and their ladies.

Dr. A. M. Gregg, chairman of the golf committee, writes: "Get this over—'bring your golf clubs to Joplin for the golf tournament.' Let it be known that those desiring to enter the golf tournament should communicate with me for particulars. We are anxious to determine who is the golf champion in the State Medical Association."

Other preparations the committee of arrangements are planning include a reception to the president to be followed with a dance on the roof of the Connor Hotel, "for those who dance," writes the secretary of the committee, "and a prize fight for those who fight"; a banquet which will be enlivened by some real live, honest-to-goodness Hawaiian dancers and vaudeville stunts; and sight-seeing tours to beautiful resorts along nearby streams.

Connor Hotel will be headquarters and members are invited to make reservations as early as possible.

The following committees have been appointed by the Jasper County Medical Society to take care of the visitors:

General Committee: R. M. James, L. C. Chenoweth, R. M. Stormont, J. I. Tyree.

Dance: C. M. Balsley, L. B. Clinton, J. A. Chenoweth, B. A. Dumbauld.

Golf: A. M. Gregg, M. O. Coombs, J. D. Pifer, C. C. Cummings.

Publicity: J. I. Tyree, R. M. James, J. W. Barson, C. B. Taylor, R. W. Webster.

Reception (to meet trains, etc.): A. B. Clark, L. C. Chenoweth, J. A. Chenoweth, C. M. Balsley, M. O. Coombs, H. W. Dickerson, E. D. James, H. A. Leaming, E. E. Moody, J. L. Sims, A. R. Snyder, J. B. Williams.

President's Reception: H. D. McGaughey, S. A. Grantham, J. D. Pifer, R. L. Neff, S. H. Miller, C. M. Ketcham, J. A. Chenoweth.

Hotel: Same as general.

Banquet: H. C. Powers, H. A. Leaming, B. M. Henry, L. C. Chenoweth, R. C. Lowdermilk.

Boxing: W. H. Mallory, H. A. LaForce, R. A. Thornton.

Convention Hall: J. W. Barson, S. H. Miller, H. C. Powers, B. A. Dumbauld.

Transportation: H. A. Leaming, E. D. James, H. C. Powers.

Women's Committees: Golf Club Lunch—Mrs. M. O. Coombs, Mrs. C. M. Balsley, Mrs. J. D. Pifer, Mrs. C. C. Cummings.

Information at Hotel: Mrs. William Stewart, Mrs. W. L. Jackson, Mrs. J. I. Tyree.

Securing new members: M. B. Harutun, R. W. Gaddie, LeRoy Simmons, J. M. Gray, W. B. Post, L. B. Clinton, O. L. Alberty.

Clinics: Webb City—V. Hazelwood, B. A. Dumbauld, R. M. Stormont, P. L. Pritchett. Carthage—E. J. Burch, C. M. Ketcham, L. B. Clinton, E. Powers, C. B. Taylor. Joplin—Staff St. John's Hospital.

STATUS OF BILLS IN THE LEGISLATURE

MEDICAL PRACTICE BILL

The bill to regulate all persons attempting to treat the sick aroused very extensive discussion and much opposition from the supporters of limited practitioners. This was to be expected, but many members of the assembly, after reading the bill carefully, changed their negative position to a favorable one. Several amendments accepted by the authors of the bill at the committee hearings won friends for the measure. These amendments were as follows:

Amend Section 7331b by striking out the words "cosmetic therapy."

Amend Section 7333d. Practitioners who are licensed to practice osteopathy, optometry, chiropody or midwifery in this state, whose licenses are in full force and effect at the time of the passage of this act, shall not be required to apply for license under the provisions of this act, but their licenses shall in every respect be regarded as though issued by the State Board of Health as required in this act.

Amend Section 7338 by inserting the words "or administration through prayer and spiritual means."

The bill was endorsed by the principal newspapers in St. Louis and Kansas City, and several editorials in county newspapers came to our notice favoring the passage of the bill. Like the bills introduced by the Bar Association, which raised the standards of preliminary education for applicants to practice law and curtailed the activities of "ambulance chasers," the Medical Practice Bill seriously interfered with the pernicious work of incompetent and ill-prepared healers of the sick, and required everyone to confine his practice to the method of treatment that he espoused. Furthermore, the prohibition of the use of titles other than the name of the branch of practice in which license was sought would prevent much of the deception that is now practiced on the people as to what sort of "Doctor" a person licensed as a healer of the sick really is. Instances are not rare in which a limited practitioner poses as a full-fledged M.D. under existing laws. Placing all practitioners under the control of the state board of health was another ground of objection by opponents to the measure.

For all these reasons the cry of monopoly was raised and the accusation made that the organized medical profession sought to control the practice of medicine in all its phases. This, of course, is not true, for the bill specifically provides that limited practitioners shall be examined by members of their own sect in the therapeutic measures advocated by them. The bill does provide that the state board of health shall examine such applicants in the fundamentals of medical science, and properly so because none but graduates in medicine are capable of examining upon the subjects of anatomy, physiology, chemistry, etc.

The bill was reported favorably by the committees of the House and Senate in spite of much effort by the opponents of the measure to prevent that action, and at this writing is on the calendar for engrossment. It is one of the most important measures introduced in the assembly, and if it does not pass at this session our members may feel gratified that the people, as reflected through the large num-

ber of friends for the measure among the legislators, are beginning to realize that the treatment of the sick ought to be placed only in the hands of persons who have an intelligent conception of the seriousness of their undertaking, and therefore should be possessed of a reasonably extensive education before entering upon the technical studies required in the practice and a fair amount of knowledge of the human body in health and disease sufficient at least to enable them to recognize and diagnose the ordinary diseases, especially contagious.

REPUTABLE MEDICAL COLLEGES.

This bill was introduced for the purpose of restoring to the present medical law the word "reputable" as affecting medical schools. It is on the calendar for engrossment in the House and Senate.

STATE GENERAL HOSPITAL.

The bill creating the State General Hospital at Columbia, through which it was expected that the clinical course in medicine could be established at the State University, met an early fate in the House when it was refused engrossment. It is still in the Senate.

SPECIAL PHYSICIANS IN ELEEMOSYNARY INSTITUTIONS

This bill permits any licensed practitioner of any branch of the healing art to attend patients in any state, county or municipal hospital supported by public funds. It is a renewal of a bill passed at the last session and vetoed by Governor Hyde, but it does not include private hospitals. The bill was very strenuously opposed by our Association and the staffs of city institutions in St. Louis and Kansas City and was reported out without recommendation by the committee in the House. In the Senate it was reported out unfavorably, but at the request of the author of the bill, Senator Robinson, it was recommitted and still rests in the committee. The bill was engrossed in the House and on March 3, during the absence of practically the entire St. Louis and Kansas City members and about thirty-five other members, it was called up for passage and passed. If passed by the Senate and signed by the governor it would have a very demoralizing effect upon the management of the state, county and city hospitals.

NURSES' BILLS

Eight or nine bills were introduced in the two Houses of the assembly affecting the regulation of nurses. The fight centered around the preliminary high school requirement and the three year course in the hospital for registered nurses, the exclusion of "practical

nurses" from registration and use of title. Many legislators from the country districts were opposed to the high standard of the law passed by the last session, claiming that it was impossible for them to obtain nurses when they were needed. So bitter was the contest in the House that when the bill came from the committee amended so as to recognize practical nurses and require but one year of high school and two years of training for registered nurses, an amendment carried striking out all in the bill after the enacting clause. This had the effect of wiping off the statutes all laws governing nurses because the bill as reported by the committee repealed the law passed in 1921.

In the senate the committee presented a substitute reducing the requirements of the present law to one year of high school for graduate nurses, a grade school for practical nurses, recognizing the title "Practical Nurse" and giving the practical nurse representation on the board of nurses. This bill is on the calendar for engrossment in the Senate.

CHIROPRACTIC BILLS

Three bills were introduced in the House and one in the Senate to govern the practice of chiropractors, each bill being apparently proposed by the advocates of a certain clique among the chiropractors. All of them followed the same general trend of establishing a separate board of chiropractors, exempting them from the operation of medical laws yet giving them all the right and privileges of physicians, and loosely providing for preliminary education of a high school diploma or its equivalent. Under such circumstances the committee considering the bills could not reach a conclusion and finally a committee substitute for the three bills was reported out. It is on the calendar for engrossment.

TO ABOLISH THE STATE HEALTH SUPERVISOR

This bill had for its purpose the abolition of the office of Health Supervisor and transferring his duties to the president of the Board of Control of Eleemosynary Institutions. If passed it would have a tendency to destroy the efficiency of the State Hospitals and renew the unrest and uncertainty among superintendents and assistant physicians in these institutions concerning the tenure of office. At present the board of control and the health supervisor are endeavoring to hold these officers in position as long as they are efficient, irrespective of their political affiliations, and there seems a splendid outlook for the establishment of this custom if the present law is not disturbed. The bill is resting in committee.

PRESCRIBING WHISKEY.

As originally introduced by Senator McCawley this bill, designed to control the liquor traffic in the state, affected the medical profession in the amount of fee a physician might charge for a whiskey prescription, limiting that fee to \$1, and omitting reference to the federal law allowing physicians six quarts of whiskey and five gallons of alcohol for office use. Since the state law, according to a ruling of the federal bureau, supersedes the federal law in such a matter that omission in Senate Bill No. 124 would have deprived physicians of the use of the amount of whiskey and alcohol mentioned. Through the chairman of our Council this omission was brought to the attention of the author of the bill and an amendment inserted conserving this privilege to the physicians.

The clause relating to the charge for a prescription for alcohol, wine or whiskey as a medicine was amended to read that such charge shall be no "greater than the usual and ordinary charge made by such physicians for a non-alcoholic prescription." The fee for a state permit to prescribe intoxicating liquors is increased to \$5 and is made payable to the state prohibition commissioner instead of the county clerk.

The bill had many objectionable features and was bitterly opposed by many manufacturing industries. It is on the calendar for engrossment.

OTHER BILLS

Among other bills that affect the welfare of the people more or less are the following:

The blind pension law was amended so as to prevent certain persons well able to care for themselves, from receiving pensions, and in several ways was made more easily operative.

The food and drug commission, under another bill, would be abolished and that department consolidated with two other departments, creating a new department.

A bill introduced by Dr. Tout in the Senate and Dr. Marks in the House, requires all physicians in attendance upon persons affected with communicable diseases, designated by the state board of health as reportable, to placard, quarantine and disinfect the places where such disease occurs. Cities of 75,000 and over and counties of 100,000 population are exempted.

A bill designed to abolish the Board of Charities and Corrections was introduced and is on the calendar for engrossment.

Senator Kinney introduced Senate Bill No. 200 to establish a sanatorium for negro tuberculous persons.

An unusual bill was introduced by Senator Cunningham (Senate Bill No. 202), designed to license a physician who has been practicing

for sixteen years although not holding a license to do so. The bill is so worded that it would affect not more than one or two persons in the state and was probably intended to apply to certain sparsely settled districts having little or no attraction for modern physicians.

Senate Bill No. 313, introduced by Senator Irwin, empowers the superintendents of State Hospitals to appoint assistant physicians at an increase in salary from \$1,500 to \$1,800. The bill also provides that there shall be five assistant physicians at State Hospital No. 1, six at State Hospital No. 2, five at State Hospital No. 3, and three at State Hospital No. 4.

All these bills are pending.

NEW CLINICAL SOCIETY

An association of physicians and surgeons has recently been organized in Kansas City to be known as the "Kansas City Clinical Society," the purposes and plans of which are well set forth in the following editorial published in the *Kansas City Star*:

BROADER SERVICE FOR MEDICAL RESOURCES

The clinical and hospital facilities of Kansas City have never been capitalized at their full worth. They can be made a genuine asset of the medical profession in a large section of the Southwest. To make them no less than that is the purpose of the Kansas City Academy of Medicine through the recently organized Kansas City Clinical Society. The academy is composed of physicians and surgeons who have made some individual contribution to medical science and who have established their competence in the profession. It is, therefore, fitted for its present undertaking.

What is aimed at is placing at the disposal of medical practitioners of this section of the country the wide variety of clinics that are held daily in Kansas City. The academy will link up these clinics through daily listing, and thus be in position to inform physicians in and out of the city as to the program at any particular hospital or other institution. It will form an intermediate agency between the members of the medical profession in this territory and the valuable sources of assistance which heretofore have not been properly utilized, just for lack of such an agency of information and encouragement.

commendable attempts previously have been made to do in Kansas City something very like what the academy now proposes. This work is now to be systematically developed. It is not expected that full results will be attained at once; there are preparations for years of work. The clinical conference arranged for next October ought to give material impetus to the undertaking. The Medical Association of the Southwest will meet in Kansas City at the time of the conference; and before that time several thousand physicians of this territory will have been acquainted with the plans of the academy or will have come into direct contact with the clinics here.

In its further plans to bring to Kansas City medical authorities of national reputation the academy will perform a service to the public of the city and territory as well as the physicians. The entire cause

is worthy of the persistent effort and devotion which members of the academy are prepared to give it.

The purpose of the formation of this Clinical Society, according to its constitution and by-laws, is: "To promote, encourage and develop the educational advantages of the clinical material of Kansas City and so systematize and co-ordinate the clinics of Greater Kansas City that they may be available throughout the year to visiting physicians."

The officers and executive committee of the Society are: President, Dr. E. H. Skinner; vice-president, Dr. L. F. Barney; secretary, Dr. James R. McVay; treasurer, Dr. Joseph Kimberlin. Executive committee: Drs. Jabez N. Jackson, Wm. J. Frick, Howard Hill, F. D. Dickson, C. B. Francisco.

NEWS NOTES

DR. W. F. O'MALLEY, of Webster Groves, has been appointed county health officer for St. Louis County, succeeding Dr. G. C. Eggers of Clayton.

DR. J. A. WATERMAN, physician at the State Penitentiary, died at St. Mary's Hospital, Jefferson City, March 2, from an abscess of the stomach from which he had been suffering for quite a while.

DR. EUGENE A. SCHARFF, Superintendent of the Isolation Hospital, St. Louis, was appointed Superintendent of the City Hospital to fill the vacancy caused by the recent death of Dr. Rolla Henry.

St. Louis University School of Medicine announces the appointment of Dr. Edward A. Doisy as Professor of Biochemistry, the appointment to take effect August 1. Dr. Doisy is at present Associate Professor of Biochemistry at Washington University School of Medicine.

DR. LEON ASHER, professor of physiology of the University of Berne, Switzerland, delivered a lecture on "The building up of the organism by chemical and nervous co-ordination and regulation" before the members of the St. Louis Medical Society at their meeting March 6, 1923. He was the guest of the St. Louis University Medical School and delivered an address in the auditorium of the university, March 5, before the faculty and a large audience of friends of the school.

DR. KENON DUNHAM, of Cincinnati, was the guest of Dr. J. C. Lyter, of St. Louis, at a dinner at the University Club Thursday evening, February 22. Dr. Dunham read a very interesting paper on Pulmonary Tuber-

culosis. About twenty physicians from St. Louis and vicinity were in attendance.

DR. HANAU W. LOEB, dean of the St. Louis University School of Medicine, St. Louis, sailed from San Francisco February 22, for a tour of the Orient. During his trip Dr. Loeb will make an inspection of the medical schools of Hawaii, Japan, China and the Philippines.

DR. AND MRS. JAMES MOORES BALL, of St. Louis, will sail on the *Indiana* April 14th, to attend the annual meeting of the Ophthalmological Society of the United Kingdom, to be held in London, April 25th, and before returning home will visit friends in England, Scotland and Holland.

HETTINGER BROTHERS, of St. Louis and Kansas City, well-known dealers in dental and surgical supplies, announce the addition of a physician's and surgeons' supplies department at 315 North Tenth Street, St. Louis, where a complete line of trusses, abdominal belts, elastic hosiery, etc., may be obtained. See their announcement on another page.

DR. PERCY BROWN, noted roentgenologist, formerly of Boston and now of Madison, Wis., will be the guest of honor at a dinner given by the Kansas City X-Ray Club, April 6th. Many X-ray specialists from the surrounding territory will be invited. After the dinner, Dr. Brown will read a paper before the Academy of Medicine.

DR. EVARTS A. GRAHAM, Professor of Surgery, Washington University School of Medicine, St. Louis, accepted an invitation from the California Academy of Medicine, San Francisco, to speak on the New Phases of Thoracic Surgery. He held a clinic at the Leland Stanford University February 9, on thoracic surgery, and a clinic on gall-bladder surgery, at the University of California, February 10.

CONTRACTS have been let for additions to the St. Louis Children's Hospital—to cost \$150,000, for which money was raised by a campaign last fall. It is also planned to build additions to the hospital buildings which the organization maintains in St. Louis county. Another story will be added to both the east and west building of the Kingshighway group which is part of the Barnes Hospital-Washington University Medical School.

THE following articles have been accepted by the Council on Pharmacy and Chemistry

for inclusion in New and Nonofficial Remedies:

Eli Lilly and Co.: Shick Test and Shick Test Control—Eli Lilly & Co.

Diphtheria Toxin-Antitoxin—Eli Lilly & Co.
H. K. Mulford Co.: Pneumococcus Antibody Solution, Types I, II and III Combined.—Mulford.

Parke, Davis & Co.: Diphtheria Toxin and Control for the Shick Test.—P. D. & Co.

Neo-Silvol.

Mercurosal.

Tincture No. 111 Digitalis.—P. D. & Co.

A COMMITTEE composed of Dr. Robert Denie, Creve Coeur; Drs. W. F. O'Malley, A. W. Westrup and Clyde P. Dyer, Webster Groves; Dr. L. W. Cape, Maplewood, and Dr. Otto W. Koch, Clayton, presented a request to the judges of the county court of St. Louis County that the St. Louis County Medical Society was favorable to and recommended that the new health commissioner to be appointed should be a full time man, be a member in good standing of the medical society and co-operate with the federal office at Jefferson City. The county court was convinced and promised to carry out the recommendations of the society and to furnish the new health commissioner new offices in the court house.

THE county court of St. Louis County is planning to engage a full time health officer at a salary of \$5,000. The Tuberculosis Society at St. Louis through its county health committee is co-operating with the county court in this undertaking and the following resolution was transmitted to the county court:

"Resolved, That the Advisory Medical Staff believes that the best interests of the county health work will be conserved through the appointment of a full-time health officer whose qualifications shall conform to the requirements of the county and state;

Resolved, That any applicant for the position of public health officer in St. Louis County shall possess qualifications required by the several universities which confer the Degree of Doctor of Public Health;

Resolved, That any applicant for the position of public health officer shall first receive the endorsement of the St. Louis County Medical Society;

Resolved, That the annual salary of said public health officer shall not be less than \$5,000."

OBITUARY

JOHN A. BROWN, M. D.

Dr. John A. Brown, of Belgique, a graduate of Barnes Medical College, St. Louis, 1898, died at his home January 12, 1923, aged forty-three years.

Dr. Brown was born at Clayton, Texas, 1876, and received his preliminary education in the public and high schools at Nacogdoches, Texas. After receiving his medical degree he practiced at Cushing, Texas, for several years before establishing himself at Belgique. He was a member of the Perry County Medical Society and the Missouri State Medical Association.

JOHN HOWARD NIXON, M. D.

Dr. John Howard Nixon, of Springfield, a graduate of the University of Pennsylvania School of Medicine, Philadelphia, 1888, died January 9, 1923, aged sixty years. He had been a member of the Greene County Medical Society and the Missouri State Medical Association for many years.

GEORGE O. TODD, M. D.

Dr. George O. Todd, of Kansas City, a graduate of the University Medical College of Kansas City, 1906, died at his home October 30, 1922, from angina pectoris.

Dr. Todd was born at Richmond, Mo., February 4, 1882. After graduation from medical college he practiced at Lawson several years and then moved to Kansas City, where he practiced about three years. Ill health necessitated his removal to the West and South, where he remained for five years. He returned to Kansas City about six years ago.

In memory of Dr. Todd the staff of St. Joseph Hospital at Kansas City adopted the following resolutions:

Whereas, the All-Wise and Omnipotent Father of us all has sent His messenger, Death, and called from his work among us our most highly regarded and esteemed colleague, Dr. George O. Todd; and

Whereas, he was a valuable and honorable member of this staff for seven years; an anesthetist skilled and dependable at all times; faithful, efficient and prompt in his work among us; and

Whereas, he was ever anxious and ready to serve the Sisters, and help the nurses, and speak kindly and sympathetic words of cheer to our patients; therefore be it

Resolved, that the members of this staff deplore the passing and the loss of one so help-

ful and so needed in our field of labor; and be it further

Resolved, that we shall not cease to cherish the memory of so gentle, so kind, so friendly, so earnest, so careful, so lovable, so endearing a member of our profession and staff; be it also

Resolved, that these resolutions be spread on the minutes of the staff and that a copy be sent to the widow of Dr. Todd to express to her our deep sympathy for her bereavement at his loss, as well as to assure her that his memory shall always be sacred to us.

STAFF OF ST. JOSEPH HOSPITAL

John O. Skinner, M.D., Secretary.
Committee of St. Joseph Hospital
Staff to draft resolutions:

A. J. Welch, M.D.,
Eugene Hamilton, M.D.,
C. E. Wilson, M.D.

DEWITT F. ESKEW, M.D.

On the 14th day of February, 1923, our beloved friend and brother, Dr. DeWitt F. Eskew, departed this life to answer roll call in the Eternal City. Even as he has upon many sad occasions kept midnight vigil over some departing soul, so in the lonely reaches of the night one of our most lovable brothers, always kind and ever generous in his dealings with his fellow man, giving much and receiving little, laid aside his worldly cares and entered Eternity's gateway into peace and quiet communion with his God and life everlasting.

He that was mortal has taken on immortality. We who knew him will feel honored in having come in touch with one so noble and to have had the benefit of his genial companionship and sincere friendliness, for the long years that now seem all too few.

We all bare our hearts in reverence to this kindly man, who bore ill will toward none and gave his all to his family and his community.

Mere words seem inadequate when we try to express in them our feelings for our friend, Dr. DeWitt Eskew; therefore be it

Resolved, That in the death of Dr. DeWitt Eskew we bear an irreparable loss in his glorious career as a physician, one who toiled along life's pathway ever administering to the sick, and giving friendly council and a helping hand to the needy; a man whom anyone would feel honored in calling friend. The community in which he lived loses a man of staunch principles and good citizenship, his wife a true and devoted husband, and the Butler County Medical Society an honored and beloved member. And be it further

Resolved, That we will treasure his memory as one who lived up to the high ideals of his profession and that it may with all truth and sincerity be said of this humble man, "Well done, thou good and faithful servant." And be it further

Resolved, That we render our heartfelt sympathy to his bereaved wife and that a copy of these resolutions be spread on our records and a copy be sent to his sorrowing helpmeet.

Done by order of the Butler County Medical Society in special session this 14th day of February, 1923.

C. W. WILLIAMSON, M.D.,
L. B. KNECHT, M.D.,
Committee.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL, FOR 1923

(UNDER THIS HEAD WE LIST THE SOCIETIES WHICH HAVE PAID THE STATE ASSESSMENT FOR ALL THEIR MEMBERS)

Chariton County Medical Society, December 31, 1922.

Webster County Medical Society, January 6, 1923.

Madison County Medical Society, January 15, 1923.

Cape Girardeau Medical Society, January 23, 1923.

Camden County Medical Society, February 1, 1923.

ST. LOUIS NEUROOGICAL SOCIETY

Meeting at St. Louis City Sanitarium, Nov. 27, 1922

Dr. Ernest Sachs, President

Dr. L. B. Alford, Secretary

MENTAL HYGIENE IN ST. LOUIS, IN 1922.—By DR. M. A. BLISS.

It seems quite trite and perhaps unnecessary to present to this society a report of the work accomplished and planned for in this community in the direction of mental hygiene. Possibly all of you have kept track of what has been going on, so it is necessary only to summarize. In the matter of work ahead it seems desirable to present the outlook if only for the purpose of securing your further aid and co-operation.

THE OBSERVATION WARD

The move from wards seven and eleven to "A" building was some betterment. You all remember the old octagonal wards up under the roof, with the corridor of cells leading to the north. There were no facilities for caring for the insane, but simply provision to protect property and persons from the violence of the mentally disordered.

The provisions in "A" building gave wider space and more air and sunlight, but the jail-like features of seven and eleven were continued. The steel doors, heavily barred windows, and no facilities for treatment by bath and packs, made "A" building also unacceptable. Many citizens desired to avoid for

members of their families the period of detention at the City Hospital and the Hospital Commissioner arranged for commitment direct (when the family made provision for it) to the Sanitarium.

Some weeks ago Mr. Cunliff appointed a committee of six to study the matter and make recommendations. Drs. Johns, Henry, Alford, Farmer, Anderson and Bliss, after meeting at the Hospital and going into all of the details, recommended the removal of the service to the detached building at the City Sanitarium, thus concentrating all the problems of the municipally-cared-for insane in one institution.

Hydrotherapy has already been well established in this building. The lower floor is, however, occupied at present by the tubercular insane. It is necessary to have this space for convalescents from acutely disturbed states, and to accommodate those coming into the receiving service who are in need of occupational therapy. It was suggested that a two-story building, divided so as to house male and female, white and colored, be put up on the sanitarium grounds, this building to be fully equipped and administered as a ward of the sanitarium. The plan would necessitate the provision on "I" ward for women and on "J" ward for men of hydrotherapy equipment. With the removal of the tubercular insane the entire detached building would be given over to a receiving service, to which patients would be sent uncommitted as at present to the Observation Ward. With the provisions suggested really adequate care and study could be comfortably supplied.

This part of the report was delivered to Mr. Cunliff on a certain Tuesday. On Friday of the same week the chairman of the committee had a letter from Mr. Cunliff saying that he had secured between a hundred and a hundred and fifty thousand dollars to carry out the suggestions of the report.

THE SURVEY

The committee under Dr. Anderson's direction continued its work. With help furnished by Mr. Cunliff and guided by Dr. Anderson, a survey of the entire situation in St. Louis was undertaken. The jail, the workhouse, the Bellefontaine Farm, the run of the courts, the social agencies and the city clinics, were all carefully examined to determine the nature and extent of the mental factors involved. This part of the report will shortly be printed and distributed and I will not go into its details which you can read at your leisure.

THE PSYCHIATRIC CLINIC

The Commonwealth Fund group has been conducting the psychiatric clinic since May. On October 2, 1922, the work accomplished was presented to the Judges meeting in General Term by Dr. Anderson and Dr. Heldt. Following this the Judges passed a vigorous resolution commending the work of the clinic and urging an appropriation by the city for its continuance. A committee was provided for to carry the expression of the Judges to the Mayor and Board of Estimate and Apportionment. There seems little doubt that the city will finance the central nucleus of the clinic. It is proposed to create, as provided in the Charter, a Division of Correction in the Department of Public Welfare, the Psychiatrist of the clinic to be the Commissioner of Corrections. A psychologist, a psychiatric social worker, a secretary and a typist would complete the central group. Details of co-operation with various agencies and groups are being worked out. The School Board has been furnishing physicians to make physical examinations and this will be continued. It is probable that psychologists from the same source will furnish aid in that field. It has been arranged with the Missouri School for

Social Economy to train picked pupils from their undergraduate class in psychiatric social work at the clinic, as has been done this past summer by the present personnel. It is probable that we may have graduate students in psychology from the universities getting their applied psychology in the clinic and getting credits allowed.

The various social agencies are taking a lively interest in the clinic and are signifying their willingness to bear a portion of the financial burden, aside from that carried by the city, chiefly in the way of supplying psychiatric social workers to do follow-up and treatment work. It is, of course, hoped that many delinquents may be kept out of the detention houses by being supervised and adjusted in their normal environment, or in foster homes. A number of agencies, aside from the courts, are now referring problems to the clinic and it is expected that this part of the work will develop as the functions of the clinic become better understood in the community.

It was at first thought that the connection of the clinic with the court would cause parents to object to having their children examined there, but this does not seem to be true and, really, why should it, when one reflects on the determiners that land an individual in a foster home, an orphan asylum, a house of detention or a jail.

THE ST. LOUIS TRAINING SCHOOL FOR FEEBLE-MINDED

The first buildings for the St. Louis Training School for the Feeble-Minded are under way. Three cottages, two stories high, with a basement nearly all above ground, patterned in part after those at Wrentham, Mass., will be erected this winter and ready for occupancy in April. A service building containing a power plant to burn oil, storage and refrigerator rooms, a kitchen in which all the food will be prepared and a dining room for officers and employees will soon be under way. It is planned to house 108 children in each of the cottages and to provide eventually for about 2,000. The farm, since its acquisition by the city in August of last year, has been cultivated by patients from the sanitarium, and satisfactory results have been obtained. A good herd of cows is being collected and many hogs are being fed. It is the intention to put in a very large garden to furnish an abundance of hand labor possible to be done by patients. The general conduct of the school, provided, as it will be, with all the facilities for training the feeble-minded, will correspond to that of schools with which you are familiar and I will not go over it here.

THE CITY SANITARIUM

The sanitarium built for 1,800 patients now has 2,800. It should be held to a limit of 2,000. We should provide a "hydro" department on "E" ward for women and on "J" ward for men to substitute that in the detached building now in active use, which will be taken over by the receiving service when moved from the City Hospital. The present bath and toilet facilities of the sanitarium are now quite inadequate and effort is being made to greatly increase them. But we need a new sanitarium on land similar to that obtained for the Training School to which would be transferred all cases capable of activity in the open, reserving the sanitarium for the acute and disturbed cases, and for the physically sick and incapacitated and for terminal cases.

It is my personal view that if the need in this direction is fully shown that an item in the Bond issue for this purpose would carry, as it did over many others in the last bond election, when provision was made for the incipient tubercular and the feeble-minded.

THE WORKHOUSE

A rather acute problem arises in the caring for the drug addicts of criminal tendencies. In this con-

nexion the suggestion is made that the Workhouse be removed to land in the "County," its name changed and that it be converted into a modern industrial and agricultural prison, with a definite hospital feature. Some very successful plants of this nature are now in operation, for instance, that of the District of Columbia at Occoquan.

The tendency is toward more careful study of criminals and toward their industrial rehabilitation. Our survey showed a large percentage with no training to enable them to compete in the labor market. Not all are capable of training, but such as are should have it rather than mere detention with hard labor for punishment.

It would seem from the preceding review that the opportunity to organize mental hygiene in St. Louis is excellent. We have an active and aggressive Director of Public Welfare, who is taking great pains to inform himself fully concerning dependents and delinquents and the best methods devised thus far for their reclamation, when that is possible, or their custodial care when they become a nuisance or a menace and cannot be changed.

It would seem that the most essential feature of a plan for good work is a capable group in the Psychiatric Clinic, so that we may acquire in the beginning a well-rounded knowledge of every individual whose condition or behavior makes him part of the city's burden, or that of some one of the many social agencies.

We shall not attain the millennium, no matter how diligently we may apply ourselves to these problems, but we shall at least do better engineering in dealing with this human material, and good engineering pays well in any activity.

DISCUSSION

Dr. Wm. Nelson: We do not have to go back many years to see the change that has been wrought in the attitude toward our mentally disabled. Within my own medical life of twenty years a marked change has occurred in our conception of the factors involved and the treatment to be instituted in many of the cases. Even the laity are beginning to regard the mentally sick person with a great deal more compassion and interest than formerly. For example, consider the change in attitude that the legislatures of some of our states have undergone in designating departments that are charged with the care of the mentally disabled. More remotely we have designated as commissions in lunacy (a very undesirable and unwholesome term as we regard it today), this term being transformed at intervals until, at present as is true in the State of Massachusetts, it is known as the Commission of Mental Diseases.

We are told that as many beds are necessary for the care of the mentally disabled in institutions as are required for all other cases, medical and surgical combined; and, since it is estimated that there are as many persons outside of institutions as there are inside them who are mentally disabled, there is no doubt that more ample and better provisions should be made for their care. In this connection let me quote you some figures contained in the annual report for the year ending November 30, 1920, of the Commission of Mental Diseases for the State of Massachusetts: The whole number of cases under the commission was 19,499, being 1 such disabled person for every 197 of the population of the state. Of this number, 15,518 were suffering from mental disease; 3,205 were feeble-minded; 674 epileptic; while a very small per cent. were inebriate and under temporary care unclassified. The increase of the insane under care for the year was 179, against a decrease of 85 the previous year. There was an average annual increase of 154 for the five years previous, and 294 for the past ten years and 385 for the last twenty-five years.

CLAY COUNTY MEDICAL SOCIETY

The Clay County Medical Society met at the Hotel Snapp in Excelsior Springs, Monday noon, February 26. Twenty-three members, wives, and invited guests seated themselves for one of the justly-famed Snapp dinners. Beginning with oyster cocktail, we wandered into the realm of roast young turkey,—but why mention the rest, when a description increases the pangs of suffering to the absentees? We believe that none *played hookey* at this meeting date. Several of our most beloved members were sick, or had sickness in their immediate families. How our hearts went out to them!

After dinner, the scientific session began, with vice-president Dr. J. E. Baird in the chair, Dr. Peterson being absent. The grueling weather outside did not prevent an enthusiastic meeting inside. Dr. Baird presented two clinical cases of the practical, everyday nature, with diagnosis, symptoms, and the successful treatment; the one, Vincent's angina, the other multiple arthritis. Both cases were discussed by Drs. Rothwell, Musgrave and Robichaux. Dr. C. H. Suddarth was ready with a most interesting case of hydrocephalus. The doctor gave merely the outstanding features of the case, and holds it in reserve for a future meeting, when the members can have more time for study. We look forward to this coming clinic as a rare treat.

The society passed a vote endorsing the Medical Practice Bill, now in the legislature, and the members will do all in their power to secure its passage. Some minor financial matters were attended to, when Dr. Y. D. Craven, in a neatly worded speech, presented the unworthy secretary with a handsome gold-headed cane, a token of appreciation, he said. We hope to exhibit this stick at the state meeting, and show the various county secretaries how Clay County does things. But, more anon.

J. J. GAINES, M.D., Secretary.

LIVINGSTON COUNTY MEDICAL SOCIETY

The Livingston County Medical Society met in the County Court Room, Chillicothe, Tuesday, January 30, 1923, at 7:30 p. m. Officers for 1923 were elected as follows: Dr. J. H. Timberman, Chillicothe, president; Dr. F. H. Emmons, Chillicothe, was re-elected secretary; Dr. J. W. Helton, censor for three years; Dr. A. Collier, Avalon, censor for two years, and Dr. M. M. Russell, Chillicothe, censor for one year.

F. H. EMMONS, M.D., Secretary.

WRIGHT-DOUGLAS COUNTY MEDICAL SOCIETY

The Wright-Douglas County Medical Society met at 1:30 p. m. Thursday, February 1, 1923, in the office of Dr. J. M. Hubbard, Mountain Grove, with the following members and visitors present: Drs. F. B. Dailey, J. M. Hubbard, H. G. James, E. C. Wittwer and A. C. Ames, of Mountain Grove; R. A. Ryan, Norwood; W. R. Beattie and O. C. Horst, of Springfield.

In the absence of the president and vice-president, the meeting was called to order by the secretary, Dr. A. C. Ames, and Dr. F. B. Dailey was elected president pro tem. The minutes of last meeting were read and approved. The secretary read a letter from Dr. R. M. Rogers, of Mansfield, requesting him to write our state representatives at Jefferson City and ask him to vote against the bill recently introduced in the Legislature to license chiropractors, and to sign it in behalf of the society. The secretary reported that these instructions had been carried out, which action was approved by the society.

Dr. Beattie, of Springfield, read a paper on Dis-

eases of the Colon and illustrated their examination and treatment by means of the sigmoidoscope and other instruments.

Dr. Horst, of Springfield, read a paper on the Diagnosis of Abdominal Disturbances and pointed out the error of using narcotics and cathartics when there is reason to suspect organic obstructions or appendicitis.

Dr. Wittwer read a paper on Diphtheria Immunization and explained the use of the Schick test, toxin-antitoxin immunization and antitoxin treatment and the very limited period of immunization secured by the latter.

All the papers were discussed by the various members present and everyone considered the time well spent.

The meeting adjourned at 5 o'clock. The next meeting will be held at Norwood, May 3, 1923.

A. C. AMES, M.D., Secretary.

BOOK REVIEWS

FEEBLENESS OF GROWTH AND CONGENITAL DWARFISM—With Special Reference to Dysostosis Cleido-Cranialis. By Dr. Murk Jansen, O. B. E., Lecturer on Orthopedic Surgery, University of Leiden, Holland. Publishers: Oxford University Press, American Branch, New York.

Jansen has published previously at least three noteworthy papers concerning achondroplasia, the relation of tension and pressure to bone formation, and the vulnerability of fast growing cell groups to injurious agents. The first part of the present book is a generalization of certain principles developed in the earlier papers. The author points out that such an injury as a focal infection, in addition to its specific effects, enfeebles all the organs of the body as well as their functions, among which is the function of growth. Such an enfeeblement of growth is the especial subject of the monograph. The author considers fatigue of the mother during pregnancy as a typical nocivity and studies the children of large families, correlating the mother's condition during pregnancy with "feebleness of growth" in the corresponding child. The three fundamental laws are that feebleness of growth is proportional (1) to the intensity of the nocivity, (2) to the rapidity of the growth of the individual and its parts, and (3) is characterized by enhanced sensibility and enhanced fatigability. With respect to bodily form, three degrees of feebleness of growth are described: (1) muscular weakness alone, (2) involvement of muscles and growth cartilages, (3) in which also the diaphyses are affected. The first type is over tall and weak; the second, weak, of average height and knock-kneed; the third is rachitic. Clinical findings will be endlessly varied according to the intensity of the nocivity and the rapidity of growth of the various tissues during its activity. The writer emphasizes particularly the locomotor system, but suggests that the principles involved can be extended to all the tissues of the body. With respect to the nervous system, which is third in order of weight in the new-born, the principles do not seem to apply, at least not without modification by other principles. It appears to the reviewer that the type of nocivity chosen by the author, fatigue during pregnancy, would hardly be present as early as the third week, when the enormous development of the head takes place. One regrets that the author did not present more in detail the injurious influences at specified times,

in correlation with the rapidity of growth of various parts of the body at these times. The paper is one of the few which present principles so fundamental that they apply directly to the work of every physician. The second part of the book is a special application of the principles of feebleness of growth, the injurious agent in this case being compression, usually by the amniotic sac. The result is a number of conditions characterized by dwarfism with mechanical malformations, which can be placed in chronological series according to the time of origin of the malformation. The series includes anencephaly, achondroplasia, mongolism, dysostosis Cleidocranialis, congenital club-foot and congenital hip dislocation. Probably no one, not excepting the author, would say that this contribution is the last word necessary on the subject. Certainly the explanation given of the first three anomalies, is the most plausible that has yet appeared.

E. T. G.

PROTEIN THERAPY AND NONSPECIFIC RESISTANCE.
By William F. Petersen, M.D. Associate in Pathology, University of Illinois College of Medicine, Chicago, Ill. With an Introduction by Joseph L. Miller, M.D., Professor of Medicine, Rush Medical College, University of Chicago, Chicago, Ill. Publishers, The Macmillan Company, New York, 1922. Price, \$4.50.

"To all those interested in the treatment of infections, and this includes both physician and immunologist, this book will be most welcome, presenting as it does in a comprehensive manner a complete analytical review of the subject, which will be of assistance in furnishing a basis for further carefully controlled studies." In this concluding paragraph of the introduction to Petersen's book Miller has correctly stated its most potent claim to the right to exist, namely, as a very complete bibliography (with more or less critical comment) of the subject of nonspecific protein therapy. While attempting here and there to arrive at some logical explanation of the nature of the nonspecific reaction and to lay down some practical rules for clinical use the author is for the most part lost in a maze of detail, of repetition, and of contradictory observations and results in practically every phase of the subject. For example, in speaking of the reaction provoked by the therapeutic injection of nonspecific substances, the author states that the benefit from this mode of treatment is roughly proportional to the intensity of the reaction, yet further on declares: "We do not yet know how much of the reaction that we elicit is necessary to bring about the therapeutic effect that we seek to achieve. We know that some substances provoke fewer symptoms that are uncomfortable to the patient and yet seem quite as efficacious in their result," nevertheless, "it has been our experience in treating arthritis that unless a sharp reaction is elicited at the first injection subsequent injections would as a rule be followed by little or no clinical improvement."

In short, the book will be of value to the experimental investigator as a collection of abstracts on the subject of nonspecific therapy. In those infections for which we have produced specific antisera no cautious clinician will yet abandon these in favor of the nonspecific bodies; in those infections in which the efforts to find a specific antibody have not met with success careful experiment with the non-specific proteins may yet evolve a method of treatment by which dosage, reaction, and therapeutic effect can be gauged with a certain degree of accuracy.

J. C.

THE TRUTH ABOUT MEDICINES

NEW AND NONOFFICIAL REMEDIES

BACILLUS ACIDOPHILUS MILK-LEDERLE.—Whole milk cultured with *Bacillus acidophilus*. It contains not less than fifty million of viable organisms (*B. acidophilus*) per c.c. During recent years reports have been published which indicate that the growth in the intestinal canal of the normally present *Bacillus acidophilus* may be increased so as to make it the predominating organism, by the administration of milk inoculated with *B. acidophilus*, by the administration of viable cultures of *B. acidophilus* in conjunction with lactose (sugar of milk) or by administration of lactose alone. The therapeutic value of cultures of *B. acidophilus* is still in the experimental stage. For a discussion of the actions and uses of lactic acid ferment preparations, see New and Nonofficial Remedies, 1922, p. 156. *Bacillus acidophilus* milk-Lederle must be kept on ice and should be used within one week of the expiration date which appears on each package. Lederle Antitoxin Laboratories, New York. (*Jour. A. M. A.*, February 3, 1922, p. 323.)

THEOCIN SODIUM ACETATE.—A brand of theophylline sodio-acetate-N. N. R. (See New and Nonofficial Remedies, 1922, p. 357). Winthrop Chemical Co., New York. (*Jour. A. M. A.*, February 10, 1923, p. 401.)

DIPHTHERIA TOXIN AND CONTROL FOR SCHICK TEST
—P. D. & Co. Diphtheria Immunity Test (New and Nonofficial Remedies, 1922, p. 320) marketed in packages containing one vial of 0.1 c.c. of undiluted, standardized diphtheria toxin, one vial of 5 c.c. of sterile physiologic solution of sodium chloride, one vial of 5 c.c. of diluted control of Schick test and one sterile syringe point. Each package contains material sufficient for fifty doses. Parke, Davis & Co., Detroit, Mich. (*Jour. A. M. A.*, February 17, 1923, p. 475.)

DIPHTHERIA TOXIN-ANTITOXIN MIXTURE-LILLY.—A diphtheria toxin-antitoxin mixture (see New and Nonofficial Remedies, 1922, p. 282), each c.c. constituting a single human dose and containing 3 L+ doses prepared in accordance with the requirements of the U. S. Public Health Service. Marketed in packages of three vials sufficient for one treatment. Eli Lilly & Co., Indianapolis, Ind.

SCHICK TEST-LILLY.—A diphtheria immunity test (see New and Nonofficial Remedies, 1922, p. 320) marketed in packages containing one vial of diphtheria toxin sufficient for ten tests and a vial of sterile physiological solution of sodium chloride and in packages of ten vials containing toxin sufficient for one hundred tests accompanied by ten vials of sterile physiological solution of sodium chloride. As a control, the Schick test control, representing diphtheria toxin of the same lot treated to destroy the specific exotoxins is supplied. Eli Lilly and Co., Indianapolis, Ind. (*Jour. A. M. A.*, February 25, 1922, p. 553.)

PROPAGANDA FOR REFORM

GINSENG.—Ginseng has found no place in modern therapy. However, it has been reported that infusions of the extract of ginseng root are diuretic. But the most recent study has shown that the drug does not affect the nitrogen metabolism. Even the quack would find it difficult to discover a tenable potency on the basis of which the use of ginseng could be "boosted." (*Jour. A. M. A.*, February 3, 1923, p. 328.)

MERCUPRESSIN.—From the advertising issued by the Barsa Chemical Co., Inc., 28 W. 23rd St., New

York for Mercupressin, this product is essentially the same as that which the Spirocide Corporation, 28 W. 23rd St., New York marketed as "Spirocide." Spirocide was claimed to be composed of metallic mercury, copper sulphate, cypress cones, henna, nut-galls and dried pomegranates. The product was sold in the form of tablets. For use the tablets were ignited and the fumes inhaled by the patient. The Council on Pharmacy and Chemistry held that the claims for Spirocide were unproved and unwarranted and that the routine use of an inexact method for the administration of mercury is detrimental to sound therapy. The Council's rejection of Spirocide was subsequently fully sustained by the investigation of the inhalation treatment of syphilis carried out by Cole, Gericke and Sollmann. (*Jour. A. M. A.*, February 3, 1923, p. 344.)

MORE MISBRANDED NOSTRUMS.—The following products have been the subject of prosecution by the federal authorities charged with the enforcement of the Food and Drugs Act:

HEALING SPRINGS WATER (Virginia Hot Spring Co.), a moderately mineralized water, containing bicarbonates of calcium and magnesium, and magnesium sulphate (Epsom salt); Brick's Sarsaparilla (Palestine Drug Co.), containing small amounts of sodium salicylate, potassium iodid, plant drug extractives, including sarsaparilla and a laxative drug, sugar, alcohol and water; Yerk's Wine Extract of Cod Liver Oil (Yerk's Chemical Co.), consisting essentially of compounds of sodium, potassium, calcium, iron, quinin, strychnin and phosphorus, extracts of plant drugs, possible traces of cod-liver oil, malt extract, sugar, alcohol and benzaldehyde as a flavoring; Anemia Tablets (Carlos M. Rivoll), containing 95 per cent. of milk sugar and small quantities of cinchona alkaloids, charcoal, sulphur, gum and compounds of arsenic, phosphorus, iron and sodium. (*Jour. A. M. A.*, February 3, 1923, p. 343.)

BAVER 205.—This is said to be a specific trypanosomid. It is said to have no effect on organisms other than the trypanosomes, even those that are nearly related such as the spirocetes. Most of the work carried out in this country has been carried out with small laboratory animals, but the successful treatment of two human cases of trypanosomiasis is reported. The composition of Bayer 205 is secret, though a hint as to its chemical composition has been discovered which suggests that it is a dye of the naphthalene series. It is hoped that in the near future the exact composition of Bayer 205 will be declared so that scientists will feel justified to carry out controlled experiments with the drug. For the present the preparation is in the experimental stage. (*Jour. A. M. A.*, February 10, 1923, p. 406.)

A PATENTED CONSUMPTION CURE.—The U. S. Patent Office has issued patents for many preparations to be used in medicine for which there has not been the slightest scientific justification. The most recent and most flagrant lack of intelligent patent law administration is to be found in a patent issued to Serghuson and exploited by the Savrite Medical Manufacturing Co., Los Angeles, Calif., for an alleged cure for tuberculosis.

This is the patented cure: Pure olive oil, one gallon; squill root, 3 pounds; bitter almonds, 1½ pounds; nettle (the plant except the root) 1½ pounds; red poppy flower petals, 1 pound. These various ingredients are to be mixed, put in a closed container, gradually warmed and left standing for about 72 hours, when the mixture is squeezed, mixed and filtered. The filtrate comprises the "cure." (*Jour. A. M. A.*, February 10, 1923, p. 420.)

THE PATENT OFFICE A FEDERAL RIP VAN WINKLE.—No branch of our government is of greater impor-

tance to the progress of the country than the Patent Office provided it is intelligently administered. When the Patent Office is used, however, for an extension of the nostrum business founded on the abuse of patent and trademark laws, it becomes a menace to public health. In 1918 a report of the Committee on Patent Law Revision of the Council on Pharmacy and Chemistry recapitulated the effort made for years by the American Medical Association to bring about patent law reform and detailed some of the cruder forms of Patent Office insufficiency in the granting of patents for medicaments. The issuance recently for a patent on a preposterous mixture of squill root, nettle and red poppy flowers in olive oil as a remedy for tuberculosis is a further illustration of patent office incompetency.

Both common sense and consideration of the health of the public suggests that the patent office should consult the scientific departments of the United States government conversant with medicine and therapeutics in the issuance of patents on medicinal preparations. (*Jour. A. M. A.*, February 10, 1923, p. 405.)

STRYCHNIN AND DISTURBANCES OF THE VISION.—The use of strychnin in the treatment of certain visual disturbances appears to be extensive. Its use in ophthalmology was introduced in 1830. In text books the claims for the usefulness of the drug in these conditions run from mere assertions regarding the usefulness of the drug in certain eye conditions to statements that it actually increases the acuity and field of vision within an hour after injection of therapeutic doses. Occasionally there is a statement to the effect that the good results from strychnin are due to psychic influences. And now, ninety-two years after its proposed use, experiments have been made to indicate that the latter opinion is probably correct and that strychnin is without action on vision. (*Jour. A. M. A.*, February 10, 1923, p. 406.)

BROWN'S NEW CONSUMPTION REMEDY.—The Post office Department has issued a fraud order against B. H. Brown, M. D., of Jacksonville and St. Augustine, Fla., and Brown's Magnolia Remedy Co. For some time Dr. Brown, a negro, has been advertising Dr. Brown's New Consumption Remedy, especially to members of his own race who are afflicted with tuberculosis. In 1917 the federal authorities prosecuted Brown under the Food and Drugs Act, holding that the claims for the preparation were false and fraudulent. Though convicted, he continued making his claims in newspaper advertisements, and in circulars that answered these advertisements. While the Department of Agriculture is helpless to prevent this form of fraud under the provisions of the Food and Drugs Act, the Post Office authorities are able to reach this form of fraud. The Department filed charges against Brown and after hearing the defense issued a fraud order against Magnolia Remedy Co. and E. H. Brown. (*Jour. A. M. A.*, February 17, 1923, p. 495.)

ALLEN'S GOITER TREATMENT.—At Sheffield, Iowa, the Allen Remedy Co. conducts a mail order business in "Dr. C. J. Allen's Goiter Treatment." The A. M. A. Chemical Laboratory analyzed the Allen nostrum and found it to consist essentially of ferrous iodide and hydrogen iodide (hydriodic acid) in a colored and flavored syrup. The serious side of the Allen Goiter Remedy Co. business is the indiscriminate sale of the nostrum to those who may be, and are likely to be suffering from exophthalmic goiter. It is well known that the use of iodin is likely to aggravate this disease and hence it is not surprising that physicians are beginning to report serious results from the use of the Allen preparation. (*Jour. A. M. A.*, February 24, 1923, p. 572.)

THE JOURNAL

OF THE

Missouri State Medical Association

The Official Organ of the State Association and Affiliated County Societies
Issued Monthly under direction of the Publication Committee

Volume XX

ST. LOUIS, MO., APRIL, 1923.

NUMBER 4

E. J. GOODWIN, M. D., EDITOR
3529 Pine St., ST. LOUIS, Mo.

PUBLICATION COMMITTEE { W. H. BREUER, M. D., Chairman
S. P. CHILD, M. D.
M. A. BLISS, M. D.

ORIGINAL ARTICLES

DIAGNOSIS AND MANAGEMENT OF CALCULI IN THE UPPER URINARY TRACT.*

NEIL S. MOORE, M.D., F.A.C.S.

ST. LOUIS

Calculi in the kidney or ureter often offer some very difficult problems for correct diagnosis. The problem becomes more complex as regards treatment when this is considered, as it should always be, to the best advantage of the patient.

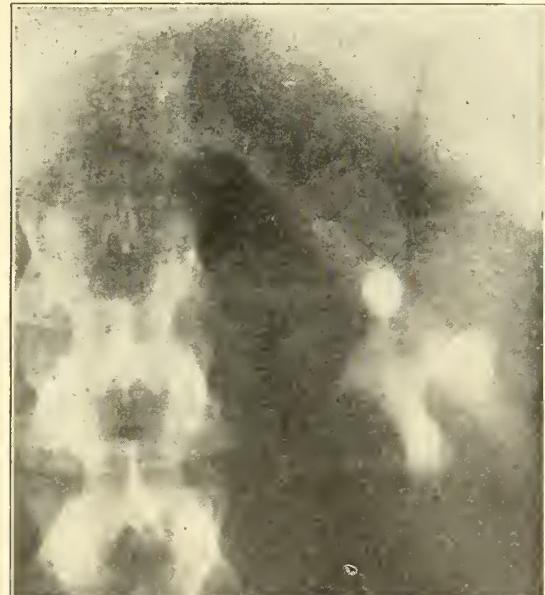


Fig. 1. Stag-horn calculus. On account of destruction it was necessary to remove the kidney.

The data for this presentation have been collected through personal observation of a fairly large series of cases, twenty-one of which have come under my care in private practice within the past eighteen months.

In the literature written upon the subject within the last few years, many theories have

been advanced as to etiology. Time and space will not permit a consideration in this paper of these theories or those of my own. A suggestion that no age, race or nationality is free from the possible formation of urinary concretions may be timely, though this is subject to slight variations.

Diagnosis.—Owing to the fact that the symptoms of and the methods of examination for renal and ureteral calculi do not materially differ they will be considered together.

Symptoms.—Pain is the most common complaint and varies according to location, size and shape of the stone, the amount of laceration of the tissues and the degree of obstruction. Calculi which are imbedded in the kidney substance proper, or which lie in the pelvis without producing obstruction, seldom cause more than a dull pain or ache in the back or side. The pain may be indefinite attacks or it may be more or less constant. Few cases have shown an entire absence of pain and the condition was only discovered through a routine urological examination—so-called silent stone. When the stone is located in some part of the ureter the pain is more severe and usually in attacks. It may simulate the pain accompanying the various conditions found on the right side, or that of a salpingitis or acute epididymitis when on the left. It usually radiates down the course of the ureter and may be referred to the bladder, testicle or thigh. Cases are recorded where the pain was referred to the opposite normal kidney.

Frequent and painful urination is a common complaint and may be present with or without pyuria, but more often accompanies the latter. It has been the only complaint in a number of the cases treated.

Chills and fever have been complained of only when infection was present.

Physical Findings.—The urine usually shows macroscopic or microscopic blood, which varies with the amount of active tissue laceration. Albumen may be due to serum albumen, to great amount of pus or to direct destruction of the kidney parenchyma. Pus and bacteria are frequently present in large amounts though the urine has been found sterile and free from pus in cases where the kidney was completely destroyed.

*Read at the second annual meeting of the Southwestern Branch of the American Urological Association, Hot Springs, Ark., October 17, 1922, and The Southeast Missouri Medical Association at Fornfels, Mo., October, 1922.

Tenderness to deep percussion over the kidney area or to percussion and palpation along the course of the ureter is often present, but it is not a constant sign. One of our cases

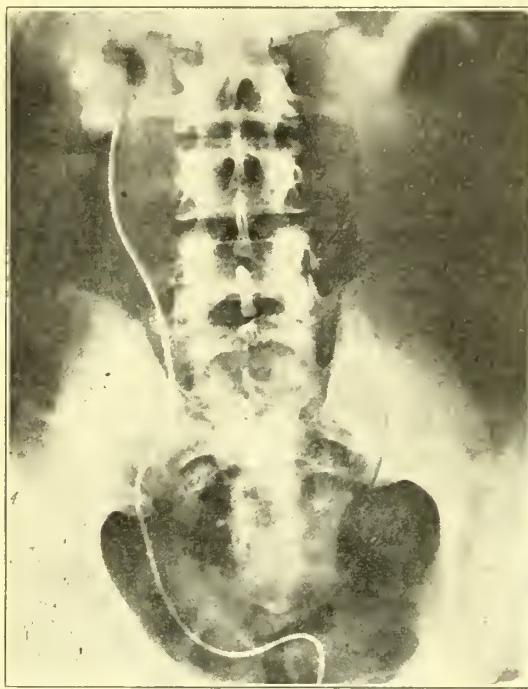


Fig. 2. One stone in pelvis, one in dilated calyx. Kidney function good. Both stones removed through pyelotomy incision.

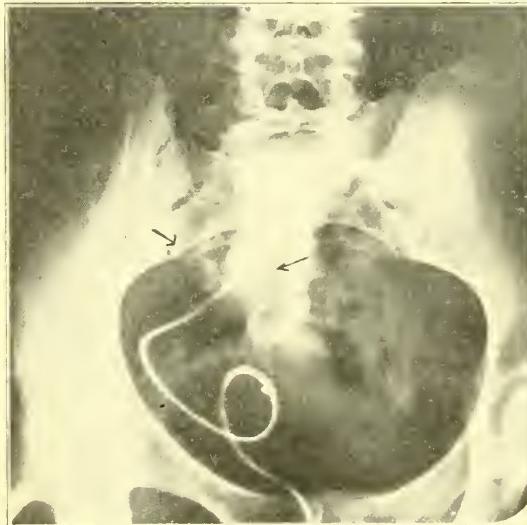


Fig. 3. Single stone in pelvis of kidney dislocated below brim of true pelvis. Most of blood supply from hypogastric (internal iliac) artery. Function good. Kidney removed because of location.

whose pain was referred to the umbilicus also had considerable tenderness over this area. The stone was lodged at the uretero-pelvic junction of a kidney normal in position.

Given a case of suspected kidney or ureter stone, aside from the ordinary routine external examination and urinalysis, our method has been to cystoscope and insert ureteral radiograph catheters to each kidney pelvis, or until definite obstruction is met with. A No. 4 French catheter has passed ureteral stones in about 25 per cent. of our cases. The remaining 75 per cent. showed complete obstruction to any size catheter or bougie.

Our custom has been to inject intravenously 1 c.c. of the stock solution of phenolsulphonphthalein just before passing ureteral cath-

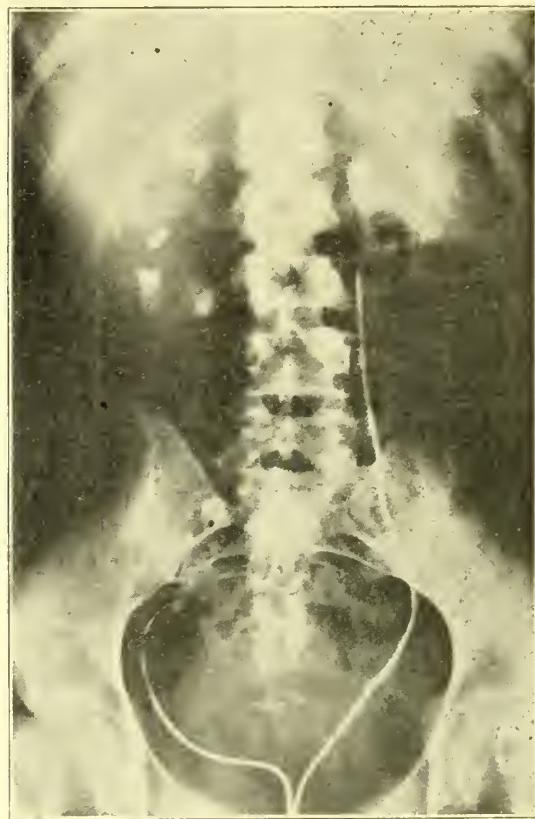


Fig. 4. Multiple calculi of both kidneys and ureters. Right ureter completely blocked. Stones of both ureters and many in pelves have been dislodged and removed. The patient has enjoyed good health for the past eight months.

eters at our first examination. With the catheters in place, urine is collected from each catheter separately for 15 minutes. The specimens are examined for pus, bacteria, crystals, etc. Specific gravity and phenolsulphonphthalein are determined. While the specimens are collected radiographs of the entire urinary system and pyelograms of the suspected side or of both sides are made.

The character of a stone shadow cast upon an X-ray plate depends upon several factors. Of great importance is the proper technic in the exposure and development of the radiograph. When signs and symptoms point to the

probable presence of a stone it has been our custom to repeat radiographic examinations until we feel sure the technic is faultless. With the technic which we are now using we are able to diagnose at least 95 per cent. of stones by X-ray. Other important factors are the thickness of the abdominal wall; size, composition and location of the stone. A calculus located over one of the vertebrae or bones of the pelvis is often difficult to demonstrate because of the nearly equal density. Stones composed of uric acid, urates or cystin do not cast so pronounced shadows and are frequently difficult to demonstrate. In such cases we have shown the calculus by injecting through a ureteral catheter some solution or emulsion of argyrol or cargentos, allowing it to drain

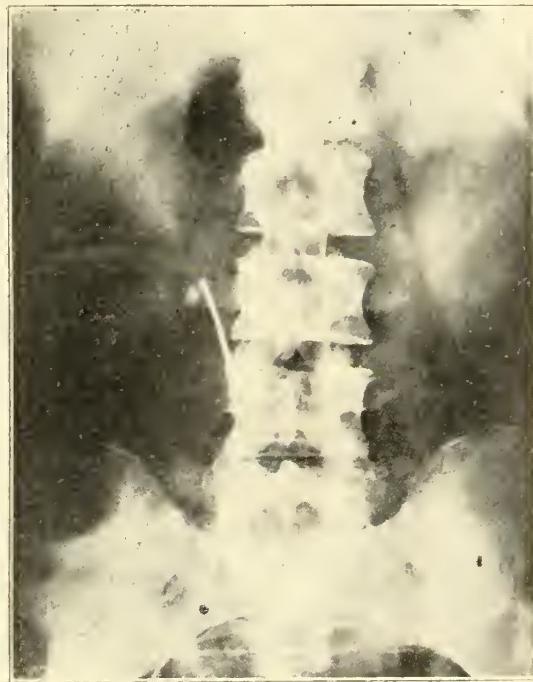


Fig. 5. Small grooved stone, right ureter. On account of very irregular shape could not be dislodged after many attempts. Removed through open operation.

away and make exposure. Enough of the silver solution adheres to the stone to cast a shadow in many instances.

If it is impossible to show a shadow by the methods mentioned a waxed tip catheter may be passed to or past the obstruction, carefully withdrawn and examined for scratch marks.

The possibility of error is so great in the use of waxed tip catheters that we have only used it as a means of last resort, although some authors consider it practically indispensable.

Recently I have noticed one sign which I have been unable to find mentioned in the literature. It is simply a shoot of muddy urine around a catheter or bougie which does not

entirely fill the ureter, into the bladder just as the instrument used strikes the calculus. Clear observation through the cystoscope is necessary, and the bladder distending medium should be as clear as possible. Naturally, stones associated with pus and infection are

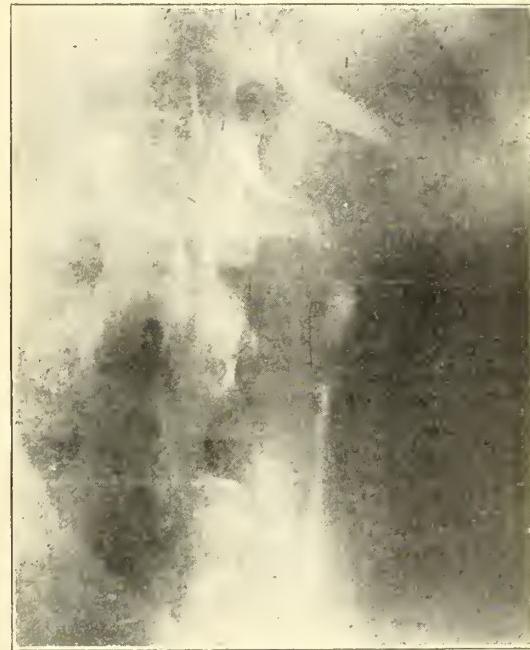


Fig. 6. Bull-valve stone uretero-pelvic junction. Useless to try removal by any but open operation—pyelotomy. Kidney function good.



Fig. 7. Stone which did not show in radiograph. Almost complete obstruction. Signs of absorption. Unable to dislodge mechanically. Stone finally passed through ureter, bladder and urethra after administration of large doses of belladonna for two weeks.

more apt to show this sign, though it has been noted when these were absent. Just how valuable this sign will be I am unable to say; I believe it has its limitations. It is only men-

tioned to impress the necessity of using all methods at our disposal which will aid in making a correct diagnosis.

Treatment.—Experience has taught me to consider every calculus in the urinary system a menace and the earlier removed, consistent with the patient's convenience and general physical condition, the better. Certainly every

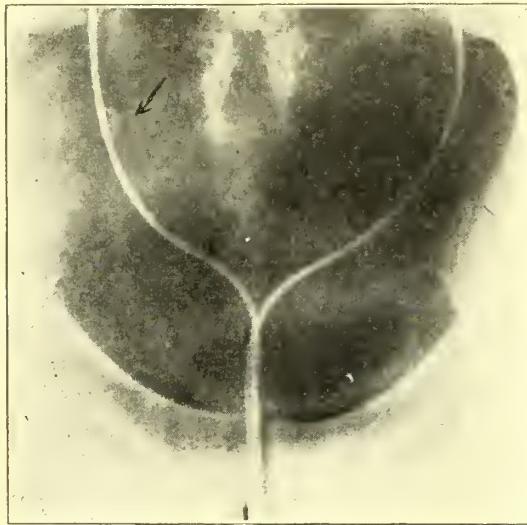


Fig. 8. Stone right ureter. Patient had short time before been operated for appendicitis. Dislodged and removed.

ureteral calculus should be removed because of the very probable damage they are apt to cause through obstruction. We have patients in this series whose general condition and blood chemistry have been restored from a definitely pathological to a normal state following removal of an asymptomatic or silent kidney stone. In two such cases it was necessary to remove the kidney owing to the size of the stone in one and the position of the kidney in the other.

Stones within the kidney or pelvis 2 cm. or more in diameter as a rule never pass out through the ureter, therefore open operation is necessary for removal. Whether nephrotomy, pyelotomy or nephrectomy is done depends upon the operator's judgment and choice after duly considering the facts at hand. Nephrectomy is indicated in some cases, where great damage has been done to the kidney substance and then only after the function of each kidney has been determined.

Ureteral calculi offer an entirely different problem, due to the fact that a great number of them may be removed by manipulation with ureteral instruments through a cystoscope. It is also true that many of them are expelled without manipulation.

Results obtained from the use of various intraureter manipulations depend upon the size, location and shape of the stone. Our

cases have shown variations particularly as to shape. We have been able to dislodge and remove many large smooth stones where, under the same technic, smaller stones that were very irregular in shape could only be removed through open operation.

The many methods of manipulating ureteral stones through a cystoscope have all been used in this series with excellent results. It has been our custom, if the stone is not dislodged at the first ureteral catheterization, to incise the ureteral orifice with scissors or an incisor to such extent that a larger instrument may pass upward or a stone may pass downward. A ureteral dilator is then passed up to the obstruction if possible, and the ureter dilated as the instrument is withdrawn. This may be done at intervals of four or five days. As many bougies as possible (we have inserted four No. 5 French, in one ureter) or a No. 11 French Garceau catheter, plugged, may be passed to the obstruction and left in place for 24 to 48 hours. This is an attempt to produce changes in the ureter or affect hydrostatic dilatation which would allow the stone to pass after the bougies have been withdrawn. Injection, through a ureter catheter, of 2 per cent. papaverin solution to relax the ureteral musculature and sterile olive oil to lubricate the calculus and tract have been used with good results.

Systemic medication in an attempt to increase ureteral peristalsis or to produce relaxation of the musculature has been followed with good results. Surgical pituitrin injected subcutaneously at three-hour intervals for four



Fig. 9. Stone lower end left ureter. Dislodged and removed with much difficulty because of length and location.

or five doses is used for increasing ureteral peristalsis, and belladonna by mouth to the point of physiological tolerance is used for relaxation. As these medications have only been used in combination with mechanical manipulations it is impossible to determine their real value.

Calculi which have been dislodged from the

ureter into the bladder and do not pass through the urethra have been removed with forceps or a Young's rongeur cystoscope.

Open operation for removal of ureteral stones has been resorted to only after a sufficient length of time has elapsed and other means have failed, or when the obstruction is so complete that danger of kidney destruction is evident.

Frisco Building.

**SUGGESTION FOR A STANDARD TECHNIQUE
IN THE APPLICATION OF THE PHENOL-
SULPHONEPHTHALEIN TEST, IN THE
DETERMINATION OF THE RELA-
TIVE FUNCTIONAL CAPACITY
OF THE TWO KIDNEYS***

H. MCCLURE YOUNG, M.D.

ST. LOUIS

The phenolsulphonephthalein test as employed for the determination of the relative functional capacity of the two kidneys, has always seemed to me to be in need of further standardization. I mean an exact standardization of technique which would be universally employed, and give uniformity to statistics from whatever source they may emanate. At present reports are seldom, I think I might say never, clear as to certain important details. Let me illustrate: In perusal of the literature we find a case report containing a note in form and substance as follows:—

P. S. P. TEST (INTRAVENOUS) TABLE I

	R	L
Time of appearance.....	3'	7'
First 15'.....	15%	10%
Second 15'.....	10%	8%
Total.....	25%	18% = 43%

Such a report appears to point clearly toward a lowered function on the left side. Nothing is said, however, as to whether or not the bladder was catheterized at the end of the test. This is a very important point as leakage alongside ureteral catheters into the bladder is very common. Had the bladder been catheterized, irrigated, and the wash water collected, a reading might very probably have discovered seven per cent of the dye. Then the report would read as follows:

TABLE II

	R	L Bladder
Time of appearance.....	3'	7'
First 15'.....	15%	10%
Second 15'.....	10%	8%
Total.....	25%	18% 7%
- Grand Total.....		50%

*Read at the meeting of the Medical Association of the Southwest, Hot Springs, Arkansas, November, 1922.

It becomes obvious at once that we must now revise our original impression. It may very well be that the seven per cent. of the dye found in the bladder represents leakage from the left side. The exact source of this dye found in the bladder cannot as a rule be accurately determined, but it is always conservative to attribute it to the apparently weaker kidney. Therefore adding seven per cent. to eighteen, the output of the left kidney, we get a reading of twenty-five, exactly the same as that for the right kidney, and the two kidneys would appear to be functioning alike.

There remains, however, still a considerable

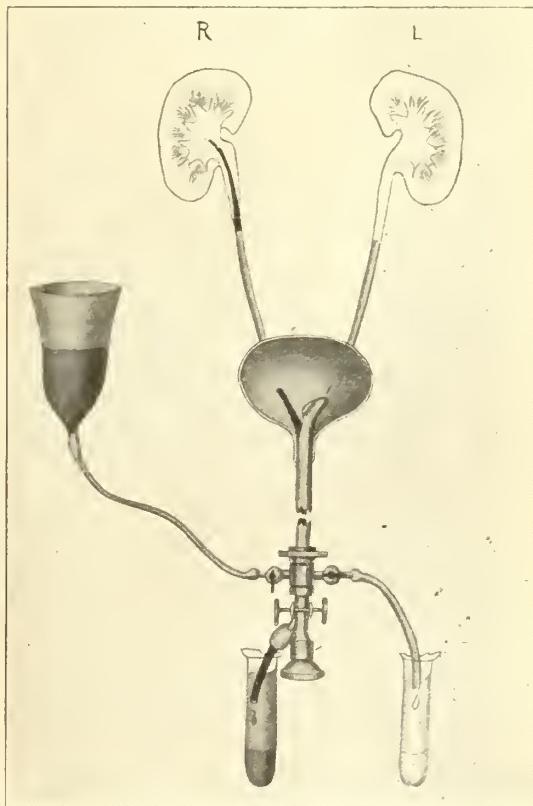


Fig. 1. Garceau catheter in right kidney. Note the arrangement of the stop-cocks during test.

ambiguity in the data as furnished. It will be noted that the time of appearance is given as three minutes for the right side and seven minutes for the left side. It is then stated that the output for the first fifteen minutes has been 15 per cent. on the right side and 10 per cent. on the left. These first fifteen minutes begin with the first appearance of the dye and not at the time of its injection, but as the appearance was not simultaneous on the two sides we are in doubt as to whether or not the period of time described as the first fifteen minutes was the same fifteen minutes for the two sides. It may be that each side was treated independently and that collection

from the left was begun four minutes later than from the right to correspond with the four minutes' delay in the appearance of the dye on that side. If this has been done the collection from the left side must also have terminated four minutes later than the collection from the right. This is obviously unfair to the right kidney. The test began with the injection of the dye. The kidneys started simultaneously in their effort to eliminate it, and to allow one of them four extra minutes merely because it was four minutes late in getting

taught that a functional test to be reliable must consist in the simultaneous collection of the excretion from the two kidneys over the same interval of time. If collection on one side begins and ends four minutes later than on the other the two are not working simultaneously.

Furthermore, referring to our tables once more, we see that they furnish no conclusive proof of delay in excretion from the left kidney. We are told simply that the appearance from the external end of the ureteral catheter was four minutes later on the left side than

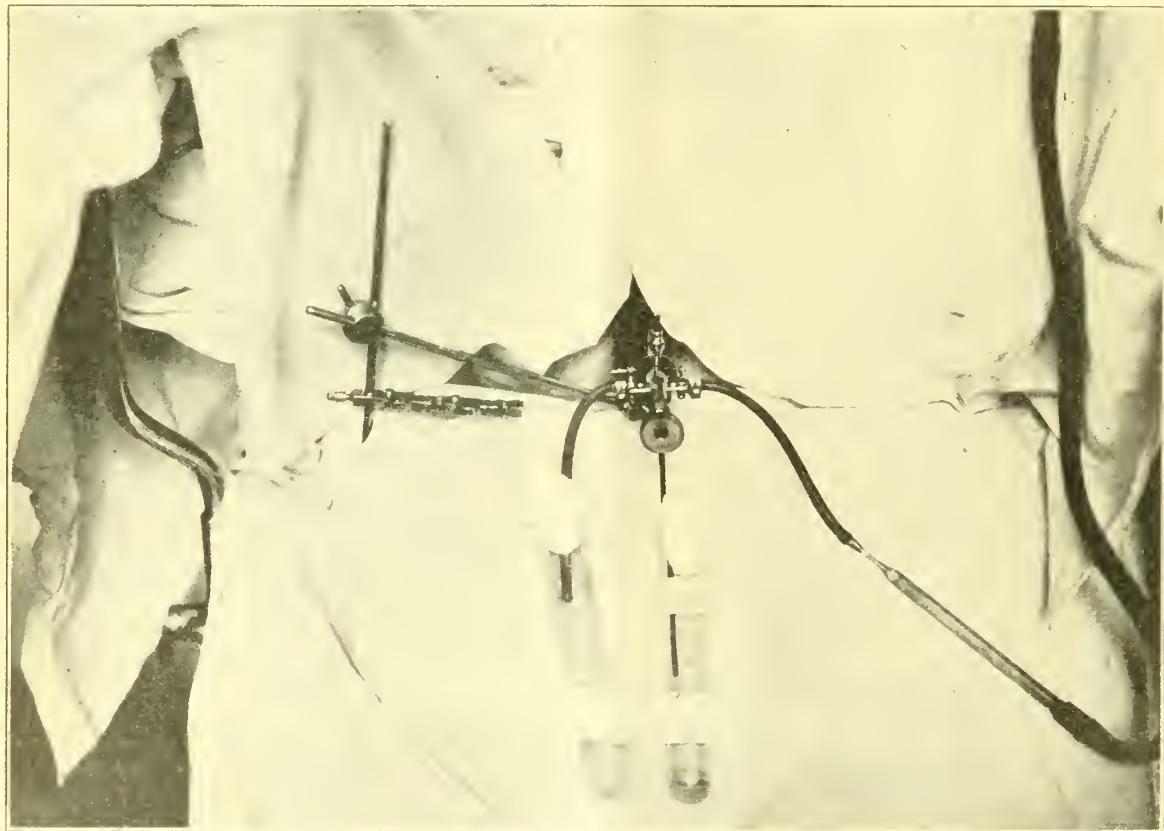


Fig. 2. The Garneau catheter is in the right ureter. The secretion from the left kidney is being collected from the bladder through the lumen of the cystoscope. Note that the telescope remains in position. Also note the position of the stop-cocks shutting off the irrigator but permitting the urine from the bladder to flow out.

under way is to throw confusion into the results.

The functional test is based upon the theorem that the two kidneys, in health working simultaneously, will accomplish the same amount in the same length of time. The word simultaneously is important. We cannot say that what the right kidney accomplishes in half an hour should be duplicated by the performance of the left kidney during another half hour later on in the day or on some other day. No one so far as I know has ever maintained that this is the case, and many have emphasized that it is not the case. It has always been

on the right. It would be interesting to know whether or not there was any flow whatever from this left catheter during these four minutes. Perhaps it was temporarily blocked or was advanced too far and had to be withdrawn a little. If so the absurdity of granting an extra four minutes to this left kidney at the end of the test becomes apparent.

The regularity of flow on the two sides and the total quantity of fluid in c.c. collected from each side during the test is important, and some note should always be made on the subject. The mere statement that the secretion from the two sides was approximately the

same would be sufficient, or that the left kidney secreted a distinctly smaller quantity than the right.

We have already noted the importance of catheterizing the bladder at the end of our test, but if we are to do this it is, of course, essential that the test should be brought to a sharp termination and not allowed to merely taper off. In other words, the test must end simultaneously on the two sides. If one side is permitted to work four minutes longer than the other, it is impossible to say at just what point the bladder ought ideally to be catheter-

	R	L	B
Time of appearance.....	3'	7'	
First 15'.....	15%	7%	
Second 15'.....	10%	9%	7%
Total,.....	25%	16%	7%
Grand total.....			48%

Flow was free from both sides throughout the test, and the quantity of fluid collected from the two sides was approximately the same.

Thus prepared, the report begins really to mean something. We are no longer in doubt

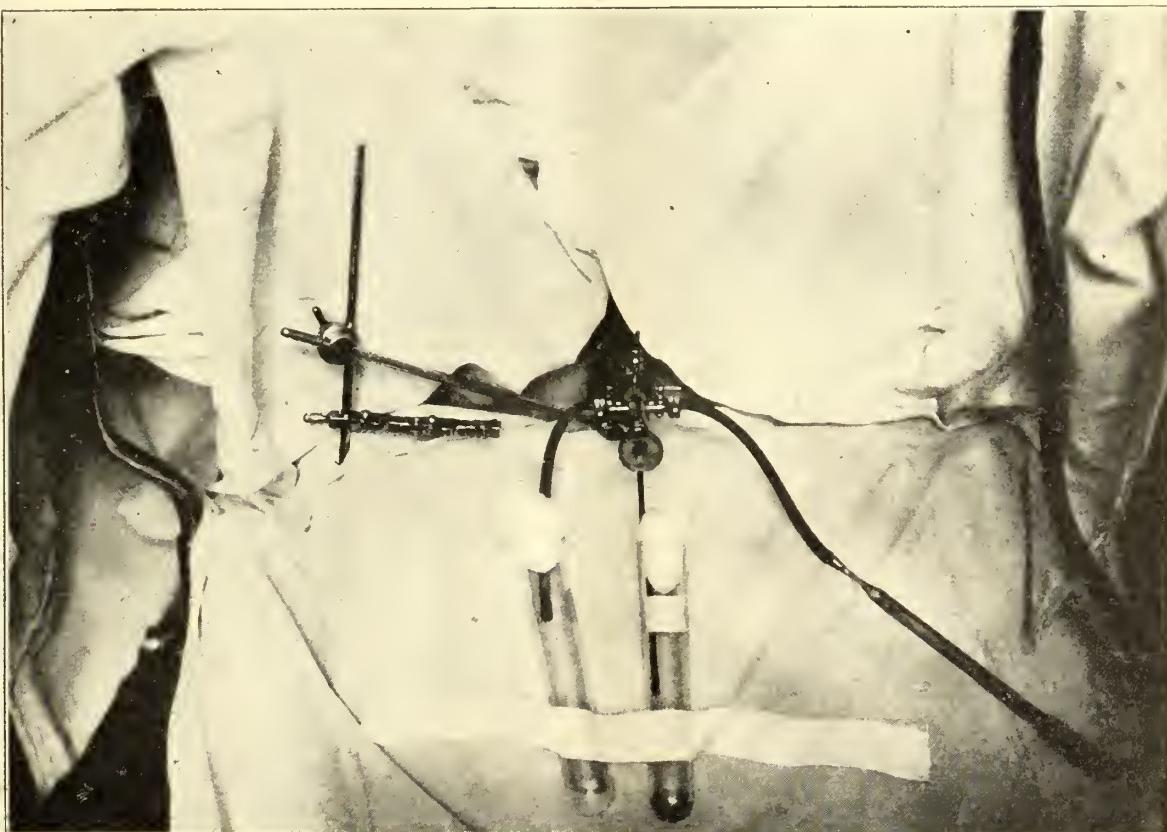


Fig. 3. The stop-cock draining the bladder has been shut off at the end of the test.

ized, or to properly evaluate the significance of any dyestuff obtained from it.

The above considerations appear to me to be compelling. We must begin our test for the two sides simultaneously with the first appearance of the dye. The first and second fifteen minutes will then conclude simultaneously on the two sides. The catheters may then be withdrawn simultaneously and the bladder immediately catheterized. Had this been done in the case tabulated at the beginning of this article the report might very probably read somewhat as follows:

as to whether or not there really is a lowering of function in this left kidney. We see at once that the delay in the appearance of the dye from the left side is an ascertained fact, and that the total output from that side is definitely lower than that from the right.

We still have, however, seven per cent. of the dye collected from the bladder at the end of the test, and it may be important to determine definitely from which kidney this excretion has come. In such cases it has been my custom to repeat the test on a subsequent occasion using now a Garneau catheter. This is

passed up on the supposedly sound side. Our purpose is to exclude the possibility of leakage, and the Garceau catheter being conical, will wedge into the ureteral orifice in such a way as to occlude it. We know that no leakage can occur around a Garceau catheter in the great majority of cases, but for all that, it is not safe to assume in any given case that no such leakage is possible. Therefore the Garceau catheter is passed on the sound side. The reason for this should be clearly understood. We know that whatever comes through that Garceau catheter must have originated in the kidney to which it has been passed. We know also that the secretion collected from the bladder must contain the entire secretion from the opposite kidney. There is no escape from these two conclusions. The most meticulous critic can find no fault so far. Let us grant, however, that the secretion collected from the bladder may contain a little more than simply the entire secretion from the uncatheterized kidney. It is at least physically possible that it may contain a small amount of leakage from the catheterized kidney, in spite of the Garceau catheter, a very unlikely possibility, but nevertheless one which cannot be put aside.

Let us suppose that a Gerceau catheter has been passed into the right or sound kidney in the case under discussion. The secretion from the left kidney has been collected from the bladder, through the lumen of the cystoscope. The table may now appear as follows:

TABLE IV

	R through catheter	L from bladder
Time of appearance.....	3'	7'
First 15'.....	19%	7%
Second 15'.....	13%	9%
Total.	32%	16%
Grand total.....		48%

Here we see at once that the delay in appearance from the left side is just the same as it has been in all the other tables. Had leakage been going on from the right side into the bladder the dye should have appeared in the bladder secretion somewhat earlier than this, or very nearly simultaneously with its appearance from the catheterized side. Furthermore, the total output from this left side appears still as sixteen per cent., precisely what it was when the technique of double ureteral catheterization was employed, but now we know positively that we have collected all of the urine that this left kidney has put out. The seven per cent. found in the bladder at the end of previous tests is seen to have originated in the right or sound kidney. We have now all the information we seek, and we have it in a form not open to question. There is no lurking pitfall. No technical error could

have deceived us. We know positively that the right kidney has put out at least 32 per cent. of the dye while the left kidney has put out not more than 16 per cent. during the half hour following the first appearance of the dye, i. e., three minutes after its injection, for the test has been conducted simultaneously on the two sides and has been ended simultaneously for both.

How different this table appears from table II. There it seemed that both kidneys might be functioning alike, and where the test is uncritically applied such a result is entirely possible even with as wide an actual discrepancy as 32 to 16. Indeed, I believe the discrepancy might even be wider than this and still not be detected where the test is applied in a loose, routine manner. Nowhere is the critical frame of mind more important than in the interpreting of these functional tests.

I have employed phenolsulphonephthalein according to the technique described above, for about eight or nine years, that is, since making its acquaintance shortly after its introduction to the profession. I have always made the collection simultaneously on the two sides regardless of any difference in the time of appearance, and I have always catheterized the bladder at the end of the test. It is my chief reliance in determining the comparative functional capacity of the two kidneys, and if checked up with a Garceau catheter whenever necessary, the information obtained may reach an accuracy and precision which amounts almost to a mathematical demonstration.

I am so fond of this test that I have come to rather resent seeing reports in which no information is given as to how the test was performed, or as to whether or not the bladder was catheterized at its conclusion. Such a report as that shown in table I, for example, tells simply that the two kidneys combined have a functional capacity of at least 43 per cent. It tells us really nothing more than this, and all such reports appear to me to be practically valueless for any other purpose.

The Garceau catheter is so exceedingly useful that I should like to say a few words as to the technique of its employment. Let us suppose that on the first examination no urine has been obtained from the left kidney. It may be that the ureteral orifice has not been found, or that the catheter for any of several reasons could not be made to enter it. Or again the ureter may have been catheterized and no urine obtained, and a functional test may then have shown such a result as the following:

	R	L Bladder
Time of appearance.....	3'	
First 15'.....	15%	0%
Second 15'.....	10%	0% 20%
Total.		45%

We are, of course, in doubt as to the origin of this 20 per cent. found in the bladder. It is to clear up this uncertainty that the occluding catheter is now employed. It is passed on the right side and wedged snugly into the orifice, and the cystoscope is allowed to remain *in situ* during the test. Any urine collecting in the bladder during the test will flow out through the cystoscope, and may be collected through a bit of rubber tubing attached to one of the little faucets on the side of the instrument. This will represent the output of the left kidney. The opposite faucet is connected

catheter are withdrawn. A reading is then made, and will very often result as follows:

TABLE VI

	R	L
Time of appearance.....	3'	
First 15'.....	28%	0%
Second 15'.....	17%	0%
Total.....	45%	0%

Here we have a mathematical demonstration that the left kidney if present is at least not functioning. We are not dealing with a probability but with a certainty.

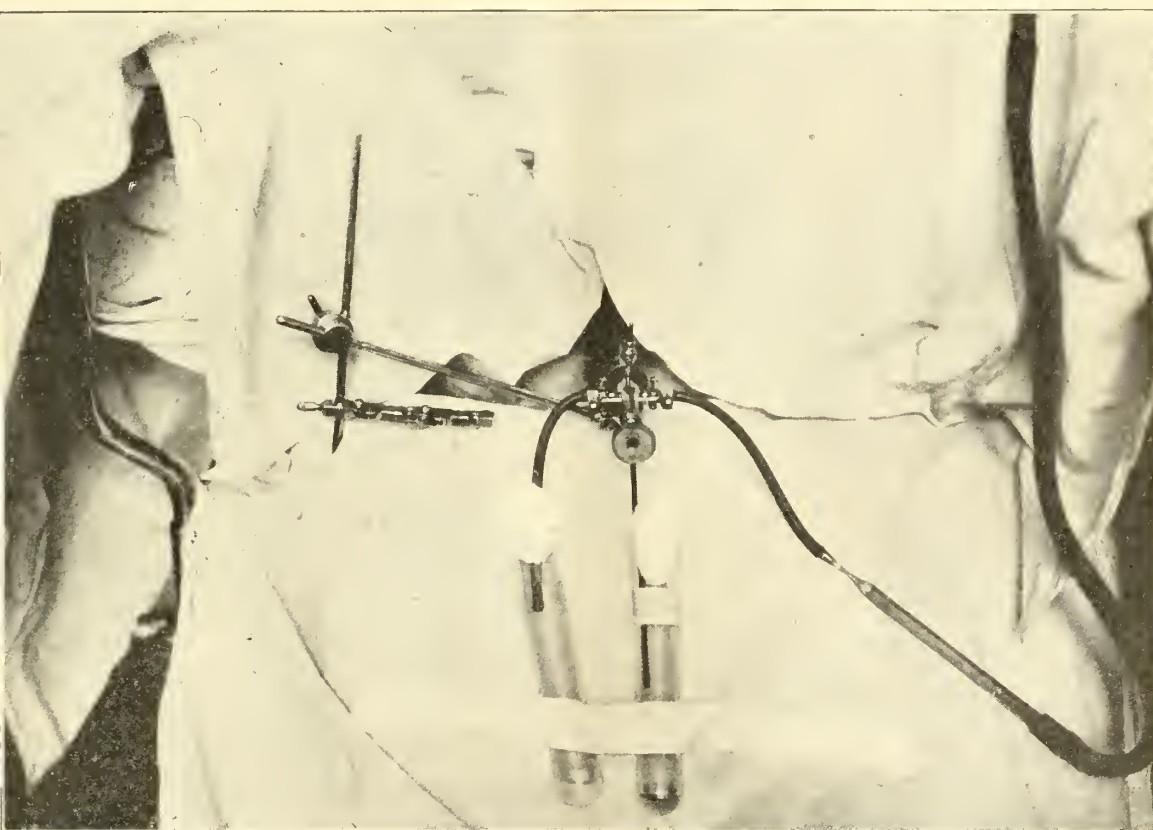


Fig. 4. The stop cock controlling the irrigator has been turned on, permitting the bladder to fill up with the irrigating fluid. By reversing both these cocks, the bladder is then drained and the fluid collected. This is repeated once or twice, or until the wash water returns clear.

with the irrigating tank, and at the end of the test the bladder is thoroughly flushed until the water returns clear. Each of these little faucets is provided with a stop cock, and during the test the faucet leading to the irrigator is cut off. At the end, however, the opposite cock is turned off while the water from the irrigator is allowed to flow into the bladder. Then by reversing the two cocks the irrigation can be shut off and the wash water collected from the bladder. When we are satisfied that we have got all the dye that could possibly be in the bladder the cystoscope and Garceau

If, however, a considerable proportion of the dye is collected through the bladder, it is highly probable that it comes from the left kidney. Should any doubt remain on the subject a chromocystoscopy might be resorted to, but such cases will be exceedingly rare. Indeed, I think it safe to say that the careful and critical employment of the phenolsulphonephthalein test, according to the technique outlined above, will give us all the information we need in practically every case where cystoscopy itself is a possible procedure. I wish, however, that a standard technique for making the test

might be adopted by all genito-urinary surgeons. We should insist that the dye be collected simultaneously on the two sides, that the test should be brought to a conclusion on the two sides at the same time, and that the bladder should be at once catheterized. The tables should show that this has been done and if this practice were universal we could compare the results of different workers with more confidence than is possible at the present time.

624 University Club Bldg.

EXPERIENCE WITH THE MOZINGO METHOD OF TREATMENT FOR EMPYEMA

A. L. FUERTH, M.D.

From Department of Surgery, St. Louis University
Medical School

CAPE GIRARDEAU, MO.

In late years, owing to the influenza epidemic and increase in respiratory diseases, there has been a corresponding increase in the number of empyema cases. The mortality has been relatively high and consequently the safest course to pursue has been the subject of much discussion. Particularly have the relative merits of the closed and open methods of drainage been compared. The closed method was popularized by some operators and various means for its use were devised. Others, however, relied upon the older method, or costectomy. It will not be the object of this paper to compare the various operative procedures employed in empyema but simply to tabulate the results obtained with a certain closed method.

Mozingo,* of Indianapolis, while working in army camps devised a simple closed method of drainage and reported such striking results with its use that it was instituted as a routine procedure in our service at the Saint Louis City Hospital in order to give it a fair trial. Mozingo's procedure is to establish intercostal drainage through a small rubber tube, irrigate the pleural cavity with Dakin's solution and later inject a formalin-glycerin solution (two per cent.). Briefly, his technique is as follows:

Under local anesthesia, a small skin puncture is made in the eighth intercostal space just below and mesial to the inferior angle of the scapula. A trocar, the lumen of which will snugly carry a standard Dakin tube, or No. 16 F. catheter, is then introduced into the chest cavity and the trocar removed, care being taken to prevent the entrance of air into the pleural cavity. The pus is now aspirated by means of a glass bulb syringe or by attaching a Potain aspirator to tube. The rapidity of removal should be governed by the patient's re-

action—embarrassing cough, dyspnea, and even dangerous symptoms may be excited when the fluid is removed too rapidly. The amount of pus removed is measured and recorded, so as to serve as a guide to alterations in size of cavity in future aspirations. Irrigations of chest cavity with Dakin's solution are now started and continued at frequent intervals, every two or three hours. At times, Dakin's is too irritating during the preliminary irrigations; then saline solution should be used for a few days. At least once during the day, the cavity should be thoroughly distended so as to prevent the formation of adhesions and pockets. When fluid becomes clearer, usually in seven to 14 days, a two per cent. solution of formalin-glycerin is injected into the pleural cavity, beginning with 8 c.c. and gradually increasing daily up to 15 c.c. These injections are continued each day along with irrigations. Cultures from the aspirated fluid are made at varied intervals, and when three successive negative reports are obtained the tube may be removed. The fluid when sterile assumes a characteristic port wine color; this, however, should not be relied upon when material for obtaining cultures is at hand. Radiograms made from time to time are helpful, especially if the presence of undrained fluid is suspected. The materials needed consist of the following:

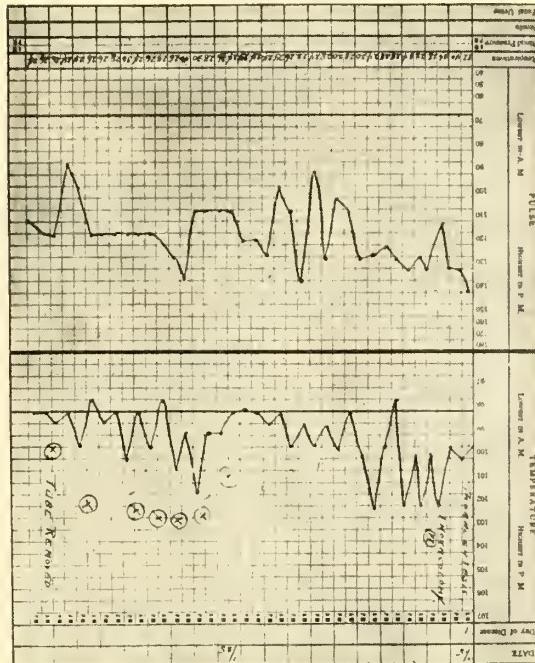
1. Trocar, the lumen of which will snugly carry a standard Dakin's tube or No. 16 F. catheter.
2. Dakin's tube or catheter, which is fenestrated by three small holes in each side, one inch from end.
3. A two-ounce glass, bulb syringe.

The dressing consists of two overlapping gauze squares, which surround tube; between them a small safety pin catches tube and prevents it slipping in or out. A few adhesive strips complete the dressing. The open end of tube is covered with a small medicine dropper bulb and then clamped. The following series of ten cases were treated according to above method.

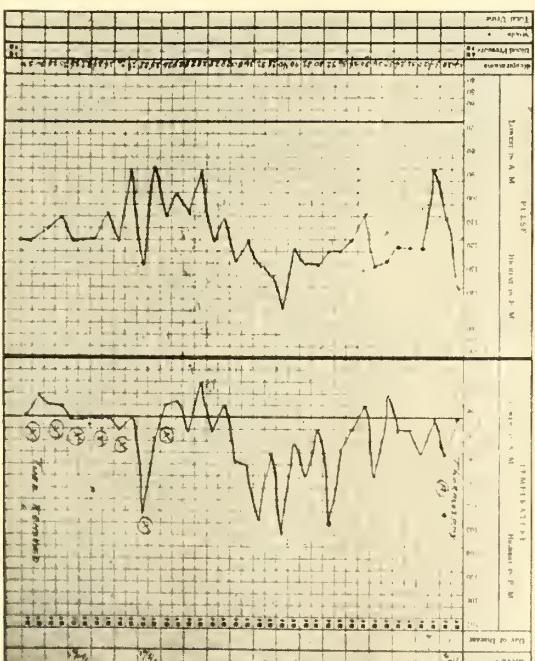
Case 1. Hospital No. 9064. White male, age three years. Empyema, right side. Aspiration of chest revealed a thick, yellow pus which when cultured showed pneumococcus. Tube inserted under ether anesthesia, 1/16/21. Capacity of cavity, 300 c.c. Frequent irrigations with Dakin's solution were started, and after one week fluid was relatively clear. Formalin-glycerin injections started on 1/23/21 and continued daily, with irrigations. A fairly marked inflammatory reaction manifested by a rise in temperature, pain, cough, etc., accompanied the first few injections of Formalin-glycerin. The third successive negative was obtained on 2/2/21 and tube removed. Duration of treatment, 18 days. Some trouble was experienced with tube, which became plugged and required removal on three occasions. The accompanying chart shows rise in temperature with use of Formalin-glycerin.

Case 2. Hospital No. 7745. Female, age 19, entered hospital with abscess of right breast and later

developed erysipelas, pneumonia and empyema (R) in order named. Operation under local anesthesia on 1/12/21. Culture of pus showed streptococcus. Capacity of cavity, 500 c.c. Pleural cavity was now irrigated frequently with Dakin's solution and fluid



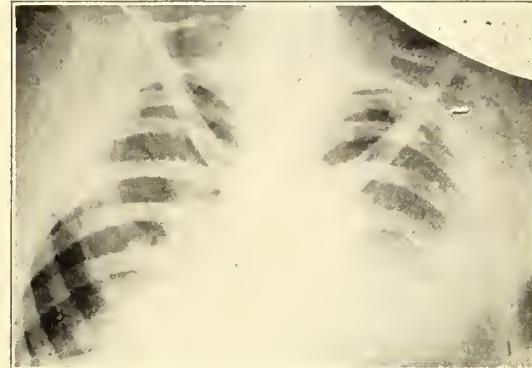
Case 1. Chart shows rise in temperature with use of formalin-glycerin injections. X indicates formalin-glycerin injection.



Case 2. Chart shows rise in temperature at points X with use of formalin-glycerin injections.

returned clear on 2/3/21, when the formalin-glycerin injections were started. The first few injections of formalin were accompanied by a rise in temperature, dyspnea, chest pains, etc. However, these symp-

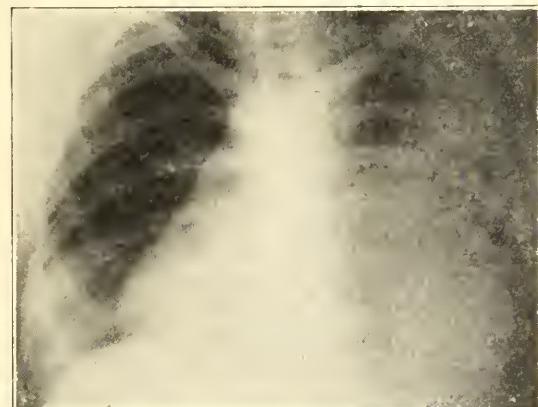
toms lasted but a short while and did not occur with the later injections. Tube was removed on 2/11/21, after three successive negative cultures had been obtained. Duration of treatment, 32 days. No difficulties were experienced in this case; tube did not become plugged and was never removed until treatment ended. Was observed three months later and found general condition good, gaining weight, no complaint. The accompanying chart shows rise in temperature with use of formalin. Radiograms shown were taken before, during and after treatment. A shadow is seen in picture taken two months after



Case 2, Fig. 1. Before operation.

tube was removed. Unfortunately a thoracentesis was not done.

Case 3. Hospital No. 11702. White male, age 22. Empyema (L). Culture showed pneumococcus and streptococcus. Capacity of cavity, 800 c.c. Treatment started on 5/15/21. Cultures negative on 6/30/21 after usual irrigations and use of formalin-glycerin. Tube was removed on 45th day. During

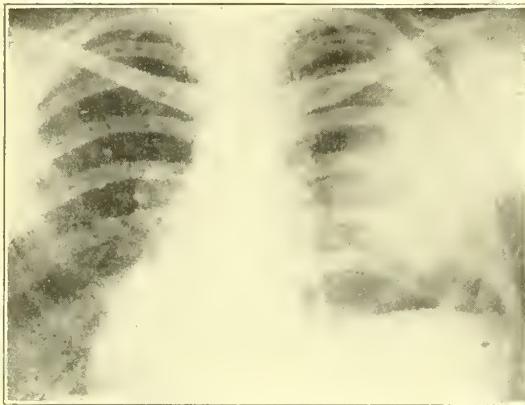


Case 2, Fig. 2. During operation. Shows tube in situ. No undrained fluid present.

the course of treatment, X-ray showed a localized collection of fluid at apex. At this time the fluid aspirated through tube was clear and cultures were negative. Irrigations were now done more frequently and more care given to distention of cavity. The fluid soon became cloudy and cultures positive again. X-ray now showed a disappearance of apical shadow. This demonstrates the importance of thoroughly distending cavity at least once a day, in order to prevent adhesions and pocket formation. Tube was removed three times, following plugging with exudate. No other trouble was experienced. When

discharged, chest was clear and patient's general condition good. Radiograms taken before, during and after treatment are shown.

Case 4. Hospital No. 9699. White male, age 44. Empyema (R). Streptococcus pus. Capacity of cavity, 900 c.c. Treatment started on 4/4/21. Formalin-glycerin injections began on 4/19/21, usual reaction noted following initial injections. Cultures negative on 4/27/21. Tube removed on 5/3/21. Duration of treatment, 30 days. No difficulties were experienced. Was observed two months later, when

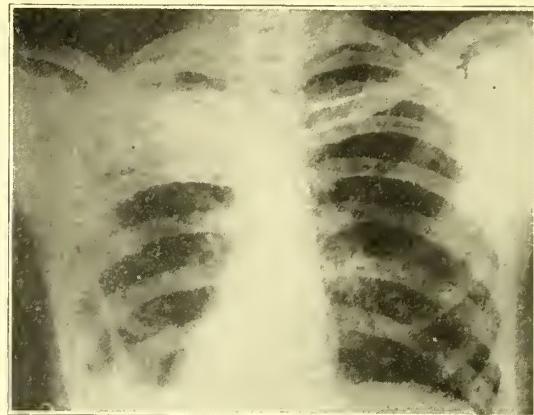


Case 2, Fig. 3. Two months after removal of tube. Shadow on left was not aspirated.

signs of fluid were present and verified by X-ray. Aspiration revealed a clear, brown fluid which proved to be sterile. General condition good, no complaint. Had gained 30 lbs.

Case 5. Hospital No. 10717. White male. Empyema (R). Culture showed pneumococcus. Capacity of cavity, 1,000 c.c. Treatment started on 3/2/21. Cultures negative on 4/24/21, when tube was removed. Duration of treatment, seven weeks. Except for formation of subcutaneous abscess at site of

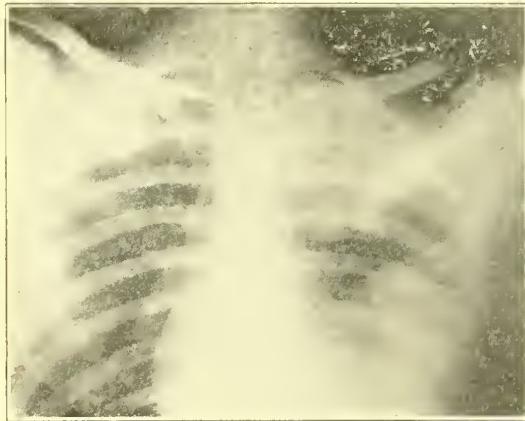
Culture showed staphylococcus. Capacity of cavity, 2,000 c.c. Formalin-glycerin injections were started on 2/14/21. Cultures negative on 3/19/21, when tube was removed. Patient developed a subcutaneous



Case 3, Fig. 2. During operation. Tube in situ. Fluid well drained except collection at apex.

abscess at site of tube which soon subsided with incision and drainage. Plugging of tube proved troublesome, removal and re-insertion being necessary three times. No further difficulties were experienced. Duration of treatment, 60 days. Was observed two months later; evidence of pleural thickening present. Thoracentesis done with negative results. General condition good, no complaint; had gained 40 pounds.

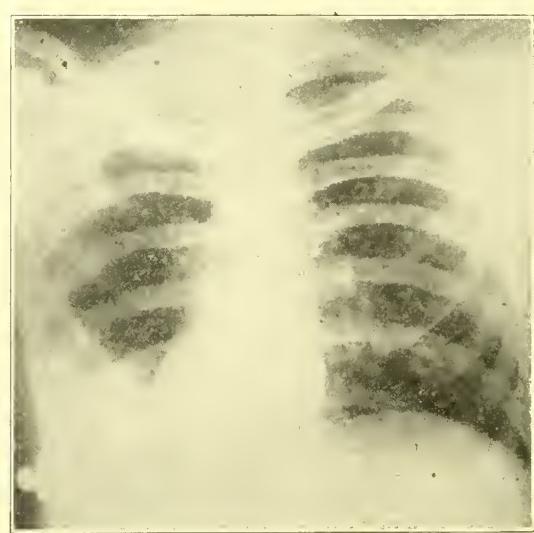
Case 7. Hospital No. 10393. White male, morphin addict, entered hospital with abscess in R. perinephritic region. Clinical findings of tuberculosis (pulmonary) present, although repeated examinations of sputum were negative. Abscess was incised and drained. Patient later developed an empyema on right side. Treatment was started on 4/21/21. Culture showed streptococcus. Capacity of cavity, 400 c.c. Cultures negative on 5/18/21,



Case 3, Fig. 1. Before operation.

tube, progress of case was satisfactory. Was observed one month later; signs of fluid were present. Aspiration revealed a clear, brown, sterile fluid which was allowed to remain with no apparent ill effects. Patient's general condition good.

Case 6. Hospital No. 8328. White male, age 55. Gunshot wound of left chest with hemothorax. Owing to embarrassed respiration, thoracentesis was necessary on several occasions and as a result empyema developed. Treatment was started on 1/19/21.



Case 3, Fig. 3. During operation. Tube in situ. Area at apex diminishing.

positive again on 5/25/21. X-ray showed undrained fluid. Trouble was experienced with plugging of tube; fluid could be forced in but could not be aspirated. A thoracotomy was decided upon and per-

formed June 16, 1921, three ribs being resected. At operation, two separate cavities were found, both lined by dense, thickened pleura and connected by means of a small sinus. Adhesions obliterated the costo-phrenic angle at site of tube and evidently obstructed it in such manner as to prevent aspiration through it. Progress satisfactory following operation.

Case 8. Hospital No. 1524. White male, age 21. Empyema (left). Culture showed pneumococcus. Capacity of cavity, 2,000 c.c. Treatment started on 6/9/21. Following introduction of tube and usual treatment, patient improved rapidly, temperature subsiding, cavity gradually diminishing in size, etc. Formalin-glycerin injections were started on 7/1/21. Cultures still positive after three weeks of treatment. No trouble was experienced with tube. Patient had an epileptoid seizure on one occasion, due apparently to forcible distention of cavity. Case not completed, though progress was satisfactory.

Case 9. Hospital No. 8986. White female, age 12. Empyema (R) following pneumonia. Culture showed pneumococcus. Capacity of cavity, 1,000 c.c. Treatment started on 12/21/21; progress satisfactory and uneventful except for the annoyance caused by plugging of tube, which required removal several times. One month later the tube slipped out. Two negative cultures had been obtained; no undrained fluid was present. Re-insertion of tube was not thought necessary. In a few weeks signs of fluid were present and verified by X-ray. Thoracotomy was done on 2/16/21 and a localized collection found posteriorly.

Case 10. Hospital No. 1524. White male, age 7. Empyema on right side following pneumonia. Culture showed pneumococcus. Treatment started on 6/23/21. Capacity of cavity, 300 c.c. Marked improvement noted one week later. Tube required removal one time. Progress satisfactory. Case not completed.

RESUME

- (A) Number of cases treated, 10.
- (B) Number of deaths, 0.
- (C) Number requiring thoracotomy, 2.
- (D) Number of cases having re-accumulations of fluid, 4. (In two of these the fluid was sterile and apparently caused no trouble.)
- (E) Of the cases requiring thoracotomy one was tuberculous while in the other the tube was perhaps removed too soon.
- (F) Tube became plugged and required removal in all except three cases.
- (G) Subcutaneous abscess developed at site of tube in two cases.
- (H) Average number of irrigations daily, 3 to 4.
- (I) Formalin-glycerin injections started on 23rd day (average).
- (J) Average duration of treatment, 37 days.
- (K) Epileptoid seizure observed one time as result of irrigation.
- (L) Of the cases, 4 were pneumococcic, 5 streptococcic, 1 staphylococcic and 1 tuberculous.

CONCLUSIONS

From the above abstract, certain drawbacks may be seen and criticisms offered. The

method is certainly more tedious and time consuming than many others. Attention to detail is necessary for its success. It may be stated that in none of these cases were conditions ideal for carrying out the treatment as planned by Mozingo. Ours is a Municipal Charity Hospital and like others of the same kind, we have suffered because of the scarcity of nurses so that special attention is difficult to obtain.

As has been stated before, in order to insure the best results with the treatment a far greater amount of attention is necessary than is required in treating empyema according to the usual methods.

It is annoying to have the tube block and necessitate its removal. The blocking may be due to plugging with fibrin. If so, Dakin's solution will, in most instances, dissolve the plug; or the tube may be obstructed between two surfaces, as in case 7. In such a case there is nothing to do but withdraw and reinsert the tube. There is some pain connected with the formalin-glycerin injections; however, it lasts not longer than one hour and is not present after the second or third injection. I think that some of the disadvantages may be remedied with proper care. Plugging of tube should be prevented if the irrigations are done often enough; and, when plugged, the solvent action of Dakin's solution usually is sufficient to overcome the obstruction. Distention of cavity will prevent adhesions and formation of pockets. The subcutaneous abscesses are due to slipping of tube and should be prevented, if proper attention is given to the dressing. In none of our cases were we able to follow exactly the technique as laid down by Mozingo, but in the ten cases reported there are no deaths attributed to the treatment. Two of the cases were still under treatment when this article was written, or when I left the service. Two of the cases had to be operated upon eventually, and several had reaccumulations of fluid in their chests several months after being discharged. This fluid, however, has always proved to be sterile and the patients are apparently in normal health. It must also be stated that in addition to this method of treating the empyema cavity, the patients were given the same treatment as given in our service following thoracotomy, that is, plenty of good food with extra albumins, frequent and graduated exercises, such as blowing bottles, calisthenics and an abundance of fresh air. The advantages of the method do not seem to need any explanations, as there is no operation and that is the big thing. The procedure is simple and without danger to life. If eight out of 10 cases get well without an operation (Mozingo's results are far better than these and he has had

(many more cases) and this in the face of our inability to exactly carry out the Mozingo technique, it would seem that the method is worthy of further trial. Especially does it seem indicated in those cases presenting a co-existing pneumonia and empyema, when even a simple thoracotomy might prove hazardous.

I wish to thank Dr. W. T. Coughlin, Director of the Department of Surgery at St. Louis University, in whose service, and at whose suggestion, the above work was carried out, for his inspiration and encouragement.

REFERENCES

A. F. Mozingo. A Closed Method of Treatment for Empyema. Journal A. M. A., Vol. 71, page 2,062, December 21, 1918.

From the Department of Surgery of St. Louis University, St. Louis City Hospital.

MORPHIA-HYOSCINE HYDROBROMIDE SEMI-NARCOSIS PRECEDING OPERATION. A REPORT OF ONE HUNDRED CASES, WITH FIFTY CHECKS

From the Obstetrical and Gynecological Services of Barnes Hospital

CHARLES D. O'KEEFE, A.B., M.D.

ST. LOUIS.

After the worth of morphia hyoscine semi-narcosis had been established in parturition under the persevering care and study of many men, both in this country and in Europe, naturally attempts were made to extend its usefulness into other fields. There have been a few who have recommended its use in operative work, among those being McGlinn¹ of Philadelphia, and my former chief, Dr. Henry Schwarz, at present Professor Emeritus of Obstetrics and Gynecology in Washington University, St. Louis. This use by Dr. Schwarz was precipitated by requests of patients who had previously been delivered with the help of morphia-hyoscine and later presented themselves for some gynecological or obstetrical operation.

The first operative case at Barnes Hospital in which the morphia-hyoscine seminarcosis, the so-called twilight sleep, was used was in 1918; while its use has been employed as a routine on both the obstetrical and gynecological services since February, 1921. The use covers both major and minor operations, with very gratifying results.

It has not been used in emergencies because of the time element, and has not been used in scheduled Cesarean sections without any apparent reason except tradition in the abstinence from morphia, which, if contraindicated at all, would have no ill effects on the fetus when given at a reasonable time before the general

anesthetic and operation. This time is in keeping with the technique to be outlined later.

Every surgeon has been confronted with the statement, "Doctor, I wouldn't mind the operation if it wasn't for the anesthetic." In fact, if one inquires carefully into the cases, the anesthetic seems to be the thing most dreaded. Every physician who has undergone an operation remembers too well the anxiety and unrest experienced during the trip to the operating room and the time intervening between the arrival there and the beginning of the anesthetic; to say nothing of the discomfort present at the start of the administration of the anesthetic, especially ether. At this time the outcome of the adventure was a foremost thought, and, although assured by the anesthetist that all would be well, the grave possibilities were magnified. To introduce something that would change this period of anxiety and unrest to a quiet seminarcotic subconscious state would be of enough value in this one advantage alone to establish its use in all cases.

Morphia-hyoscine has its advantages even beyond the state of paving a peaceful path to the operating room and anesthetic. It often takes the place of a general anesthetic in many minor operations. Several such operations have been done on our service without the aid of a general anesthetic, such as the application of radium, removal of cervical polypi, dilatation of the cervical canal, insertion of bag or bougies for the induction of labor, and other operations, with no apparent discomfort to the patient, who remained perfectly quiet throughout the operation and remembered no events pertaining to the operation. Where a general anesthetic was used in conjunction with the morphia-hyoscine it was found that the amount of ether was reduced, the induction quieter and the post-operative course smoother. Although it has not been used preliminary to local anesthesia on our service, it undoubtedly would be of great value, both to the patient and the operator, as has been pointed out by McGlinn.

As compared to the technique used in parturition the administration of the seminarcotic is much the same in the operative cases. However, the patient is kept much quieter and is not aroused by the pain caused by the uterine contractions; therefore the conditions are more ideal and the results even better in the operative cases.

The technique has varied in this series of cases, depending upon the operation and whether it was intended to proceed without a general anesthetic; and also because of the attempt to find a suitable routine for the abdominal and vaginal cases. The technique has varied as follows:

1. Morphia gr. $\frac{1}{4}$ and hyoscine hydrobromide gr. 1/130 (1 c.c.) given 1 hour and

45 minutes before the scheduled time of operation; the hyoscine 1 c.c. repeated in 45 minutes.

2. Same as in (1) except morphia gr. 1/6 used.

3. Same as in (2) except a third injection of hyoscine was given 45 minutes after the second, or 15 minutes before the scheduled operation.

In all cases the injections were subcutaneous.

In every case the administration was started in a quiet room, the patient's eyes being covered with a piece of gauze and the ears plugged with cotton moistened with olive oil. If the room was dark and absolutely quiet the covering of the eyes and plugging of the ears was sometimes delayed until the second injection, or until the patient was moved. Absolute quiet was the rule after the patient had once felt the effect of the drugs. The merits and advantages of each technique may be analyzed from the detailed study of the following cases.

Forty vaginal operations with 25 checks. These vaginal operations include everything from the application of radium and removal of cervical polypi to amputations of the cervix, trachelorrhaphies and perineorrhaphies. No vaginal hysterectomies or other major operations in this series.

Of the 40 vaginal cases, 10 received no additional anesthetic and will be considered separately. Of the remaining 30 vaginal cases, 22 received ether, 3 chloroform, 4 nitrous oxide, oxygen and ether, and 1 nitrous oxide and oxygen. The cases receiving ether are tabulated in the following table:

hyoscine 2 c.c.; although only four cases are tabulated. The morphia gr. 1/4 and hyoscine 2 c.c. gave excellent results as compared with the checks.

The next table shows the average respirations and pulse before, during and after operation as compared to the cases used as checks that received morphia gr. 1/6, atropine 1/150. The respirations and pulse, before and after, show an average of each for two days preceding and following operation respectively.

From this table the most important thing noted is the slow respirations which are encountered with the use of morphia gr. 1/4. This depends upon two conditions: First, the physique of the patient; second, the time intervening between the injection of the morphia and the beginning of the general anesthetic. In considering the first, morphia gr. 1/4 seems to have no appreciable ill effect upon the woman of moderate weight; however, the respirations are markedly slowed in the undersized or frail woman. This slowing sometimes becomes so marked that the patient becomes cyanosed, the cyanosis resulting from an improper aeration of the blood. In the second case the morphia is given one hour and forty-five minutes before the scheduled operation and has already passed the peak of its action and does not affect the woman of average weight. We know that morphia is a respiratory depressant by direct effect upon the respiratory center and by the action of the alkaloids on the muscle fibers of the bronchioles, causing broncho-constriction.² Morphia is excreted mainly by the digestive tract and can be found in the stomach 2½

TABLE No. 1 (VAGINAL CASES)

	Number of Cases	Average Amount of Ether	Average Duration	Minutes per Ounce	Remarks
Morphia-Hyoscine					
Morphia gr. 1/4	22	5.24	39.63	7.56	
Hyoscine 2 c.c.	8	5.2	51.24	8.42	
Morphia gr. 1/6					
Hyoscine 2 c.c.	4	4.62	50.	10.81	
Morphia gr. 1/6	10	3.94	26.2	6.65	
Hyoscine 3 c.c.					
Checks	25	4.92	29.75	6.04	

Showing average amount of ether, average length of duration of operation and average number of minutes patient was kept anesthetized with one ounce of ether, with checks.

In checking this table it is readily seen that one ounce of ether kept a patient under for an average of 7.56 minutes after she had been given the morphia-hyoscine, and only 6.04 minutes in those patients who had received morphia and atropine. The best results in this series were obtained with morphia gr. 1/6 and

minutes after an hypodermic injection. There is no further excretion through the stomach after one hour although its narcotic action persists from 3 to 4 hours after injection. A certain amount of the morphia undergoes oxidation in the tissues.³ Its effects are found as early as 8 to 10 minutes after injection, its

action reaching its height at about 35 minutes later. The action of morphia varies with the individual case and for this reason it is not wise to use too large a dose for a small patient.

The next table shows the condition following operation, and the post-operative interview, showing the effect of patient's seminarcosis; whether the patient was quiet or restless, amount of urine in 24 hours following operation, showing number of injections remembered, whether trip to operating room was

the injections given; 2 remembered but 2 injections, three injections being given; and one remembered only 1, she also receiving three injections. Seven remembered going to the operating room and six remembered the beginning of the anesthetic. One patient remembered all events and claimed that the administration of morphia-hyoscine had no effect whatsoever.

Of the 10 cases where 3 c.c. of hyoscine were given, in which the interview was recorded,

TABLE No. 2 (VAGINAL CASES)

M-H Cases	No.	Respirations			Relative Changes		Pulse			Relative Changes		Remarks
		Before the Operation	During the Operation	After the Operation	During	After	Before	During	After	During	After	
Morphia gr. 1/4	9	20.1	25.33	20.77	5.23	.67	82.22	96.6	91.33	14.38	9.11	
Hyoscine 2 c.c.					+	+				+	+	
Morphia gr. 1/6	21	20.09	28.19	20.75	8.1	.66	87.87	107.51	91.65	19.64	3.78	
Hyoscine 2 c.c.-3 c.c.					+	+				+	+	
Morphia gr. 1/6	6	19.5	25.12	21	5.66	1.5	84.66	98.33	92.5	13.67	7.84	
Hyoscine 2 c.c.					+	+				+	+	
Morphia gr. 1/6	15	20.92	29.5	20.46	8.58	.46	89.66	113.39	91.28	23.73	1.62	
Hyoscine 3 c.c.					+	-				+	+	
Total	30	20.09	27.33	20.76	7.24	.67	86.16	104.26	91.55	18.1	5.39	
Morphia gr. 1/6	23											There were only two cases that received Morphia gr. 1/4 and Atropine gr. 1/150. There was no relative increase in respirations but a drop of 3 per minute in one.
Atropine gr. 1/150												
Morphia gr. 1/4	2											
Atropine gr. 1/150												
Total	25	20.56	28.5	21.28	7.94	.72	86.04	111	86.96	24.96	.92	

remembered or the starting of the anesthetic, and last, whether the patient was nauseated or vomited. All the cases were given ether.

Three out of the 22 cases vomited, or a percentage of 13.6 per cent., as compared with 8 out of 25 of the checks, or a percentage of 32 per cent. Fourteen postoperative interviews were recorded in checking the results of the seminarcosis; 11 of these cases remembered all

only one remembered the trip to the operating room and the anesthetic. This patient was drowsy and in a very receptive mood and while conscious of events they were not unpleasant experiences. All were quiet following the operation except one, who was markedly restless. This patient received 3 injections of hyoscine, and her restlessness was attributed to the action of this drug. All the checks were

TABLE No. 3 (VAGINAL CASES)

Technique	No.	Condition of patient first 2-3 hrs. following operation	Urine output first 24 hours	Memory of number of injections, trip to operating room, and beginning of anesthetic			Nausea or Vomiting	Remarks
				Injection	O. R.	Anes.		
Morphia gr. 1/4 Hyoscine 2 c.c.	1	Quiet	350	2	No	No	None	Drowsy
	2	Quiet	500	2	Yes	Yes	None	
	3	Quiet	750	No	Interview	Yes	Vomited	
	4	Quiet	?	No	Interview	Yes	None	
	5	Quiet	1200	2	Yes	Yes	Vomited	
	6	Quiet	—	No	Interview	Yes	None	
	7	Quiet	640	2	Yes	Yes	None	
Morphia gr. 1/6 Hyoscine 2 c.c.	1	Quiet	400	2	Yes	No	None	Drowsy
	2	Quiet	800	2	Yes	Yes	Nauseated	
	3	Quiet	350	2	Yes	Yes	Vomited	
	4	Quiet	550	No	Interview	Yes	None	
	5	Quiet	good	2	No	No	None	
Morphia gr. 1/6 Hyoscine 3 c.c.	1	Quiet	1450	No	Interview	Yes	None	Drowsy
	2	Quiet	550	3	Yes	Yes	None	
	3	Quiet	450	No	Interview	Yes	None	
	4	Restless	650	No	Interview	Yes	None	Drowsy
	5	Quiet	good	3	No	No	None	
	6	Quiet	good	2	No	No	None	
	7	Quiet	good	No	Interview	Yes	None	Drowsy
	8	Quiet	good	2	No	No	None	
	9	Quiet	good	1	No	No	None	
	10	Quiet	good	3	No	No	None	

TABLE No. 4 (VAGINAL CASES)

Kind	No.	Condition during operation	Number Injections Remem-bered	Trip to O. R. remem-bered	Operation remem-bered	Condition following operation	Output	Remarks
Morphia gr. 1/4 Hyoscine 2 c.c.	1	Quiet	2	No	No	Quiet	Good	Remembered events Nauseated Semiconscious
	2	Quiet	2	Yes	No	Quiet	Good	
	3	Quiet	2	No	No	Quiet	Good	
	4	Quiet	2	No	No	Quiet	Good	
	5	Talking	2	Yes	Yes Partial	Quiet	Good	
Morphia gr. 1/6 Hyoscine 3 c.c.	1	Quiet	2	No	No	Quiet	Good	Considerable nausea and vomiting
	2	Quiet	2	No	No	Quiet	Good	
	3	Quiet	2	No	No	Quiet	Good	
	4	Quiet	2	No	No	Quiet	Good	
	5	Quiet	2	No	No	Quiet	Good	

quiet. Both the cases receiving morphia-hyoscine and the checks had a good urinary output, as checked during the first twenty-four hours. It was necessary to catheterize seven of the 22 cases; however, this inability to void was attributed to the character of the operation rather than to any drug reaction; this theory was borne out by the checks.

Table No. 3 shows that the ill effects of the administration of the drugs are practically nil, being limited to an undesirable restlessness in some cases. Here again the size of the patient should be strictly considered and the amount of hyoscine given accordingly. The advantages are quite pronounced, the seminarcotic condition just preceding the general anesthetic and the quieter postoperative course being outstanding features.

Ten cases were collected where no additional anesthetic was given, the operation being carried out under the morphia-hyoscine administration alone. All these cases received radium, 5 for carcinoma of the uterus, 2 for myoma of the uterus and 3 for metrorrhagia.

Nine of these cases had complete amnesia, the tenth remembered events, including parts of the operation. Nine of the patients were perfectly quiet during the operation and none restless after leaving the operating room. One patient slept four hours following the operation. Two patients had considerable nausea and vomiting; this high percentage is due, perhaps, to the action of the radium, as many cases

have gastric distress following the use of radium or X-ray.

For operations without additional anesthesia the three injections of hyoscine seem to give better results, the third injection never being remembered in this series and complete amnesia for all events resulting. The advantage of the administration of these drugs in minor operations without any additional anesthetic cannot be emphasized too strongly. The operation is oftentimes of such a minor nature that both the patient and the surgeon feel that a general anesthetic is hardly justifiable, or if so, is a great source of worry to the patient. In many cases there may be some condition present in which a general anesthetic is contraindicated, and the site unsuitable for local anesthesia; in such instances morphia-hyoscine administration is quite advantageous.

There were 60 abdominal operations with 25 checks. The majority of these cases were taken from the gynecological service of Dr. H. S. Crossen and varied from simple uncomplicated cases requiring a short operation to difficult cases with many complications requiring a longer period of time.

Of the 60 cases given morphia-hyoscine seminarcosis, 31 had ether, 27 nitrous oxide, oxygen and ether, with no record of the kind of anesthetic in two cases.

Table No. 5 shows the amount of ether, the average length of operation and the average number of minutes per ounce of ether for the

TABLE No. 5 (ABDOMINAL CASES)

	Kind and Amount	Number of Cases	Average amount of ether in ounces	Average length of operation in minutes	- Minutes per ounce	Remarks
Morphia-Hyoscine Semi-narcosis	Morphia 1/6 Hyoscine 2 c.c.	11	7.4	72.7	9.8	
	Morphia 1/6 Hyoscine 3 c.c.	5	6	48	8	
	Morphia 1/4 Hyoscine 2 c.c.	15	6.2	53.2	8.27	
	Total	31	6.5	54.6	8.69	
Checks	Morphia 1/6 Atropine 1/150	17	7.93	86.8	10.9	
	Morphia 1/4 Atropine 1/150	8	7.08	65	9.1	
	Total	25	7.7	80.9	10.5	

different combinations as compared with the checks.

In the above series the best results were obtained in the use of morphia gr. 1/6 and hyoscine 2 c.c., one ounce of ether maintaining

surgical anesthesia for 9.8 minutes. Better results were obtained in the other two techniques than in the checks although the chart appears misleading until analyzed carefully. The length of the operation plays a very

TABLE No. 6 (ABDOMINAL CASES)

	Number of cases	Average amount of ether in ounces	Average length of operation in minutes	Minutes per ounces	Remarks
Morphia-Hyoscine	9	5.8	60.5	10.4	
Morphia-Hyoscine	8	6.6	70.4	10.6	
Morphia-Atropine	9	7.5	60.	8.	
Morphia-Atropine	8	7.52	71.2	9.4	

TABLE No. 7 (ABDOMINAL CASES)

Morphia-Hyoscine Cases	No.	Respirations			Relative Changes		Pulse			Relative Changes		Remarks
		Before	During	After	During	After	Before	During	After	During	After	
Morphia gr. 1/4	27	19.8	28.5	21.1	8.7	1.3	85.2	106.9	94.9	21.7	9.7	
Hyoscine 2 c.c.					+	+				+	+	
Morphia gr. 1/6	33	20.	29.8	21.3	9.8	1.3	87.1	108.3	97.6	21.2	10.5	
Hyoscine 2 c.c.-3 c.c.					+	+				+	+	
Morphia gr. 1/6	18	20.	30.2	20.7	10.2	.7	84.4	105.4	96.1	21	11.7	
Hyoscine 2 c.c.					+	+				+	+	
Morphia gr. 1/6	15	20.1	29.3	22.1	9.2	2.0	90.4	111.8	98.4	21.4	8.0	
Hyoscine 3 c.c.					+	+				+	+	
Total	60	19.9	29.3	21.3	9.4	1.4	86.6	108	96.4	21.4	9.8	
Checks												
Morphia gr. 1/6	17	19.9	34.8	23.9	14.9	4.0	81.7	116.7	100.8	35	19.1	
Atropine gr. 1/150					+	+				+	+	
Morphia gr. 1/4	8	19.8	31.8	22.8	12.	3.0	80.6	113.7	92	33.1	11.4	
Atropine gr. 1/150					+	+				+	+	
Total	25	19.8	33.5	23.5	13.7	3.7	81.4	115.8	97.7	34.4	16.5	

important part in the amount of ether used per minute. As the length of the operation increases the relative amount of anesthetic decreases because of the correspondingly large amount of ether required to get the patient to surgical anesthesia. It has been said by many and has been the experience of the author gained over some 2,000 cases, that the amount of ether required to get a patient surgically anesthetized equals the amount to keep the patient under for an hour after surgical anesthesia has been reached. A large amount of ether is wasted through the technique used and the struggling of the patient.

When given over practically the same length of time the advantages of the morphia-hyoscine are clearly brought out in the following table.

In the operations, which averaged approximately 60 minutes, one ounce of ether maintained surgical anesthesia for 10.4 minutes in the morphia-hyoscine cases and 8 minutes in the morphia-atropine cases, while in the 70-minute operations the relations were 10.6 minutes to 9.4 minutes, the advantage being with the morphia-hyoscine cases.

In the next table the respirations and pulse in the morphia-hyoscine series are checked against the different techniques and against those cases receiving only morphia and atropine.

In checking the different techniques there is not much advantage of any one over the others so far as the pulse and respirations are concerned. Morphia gr. $\frac{1}{4}$ slows the respirations more during operation, which is marked only in those cases that are small and poorly nourished. In one case the respirations ranged from 5 to 16 per minute during the operation, averaging 14 per minute. This patient was poorly nourished and weighed only 96 lbs. Although the morphia was given 1 hour and 45 minutes before the operation, it still had a marked influence on the respirations. Hyoscine, we know, quickens the pulse, but here, too, no marked acceleration was found, even with three injections of hyoscine, the actual rate and relative increase being less than the checks. Thus from a study of these cases, as compared to the checks, no contraindications were found for any of the technique concerned except morphia gr. $\frac{1}{4}$ in small women. This effect on the respirations was due to the action of the morphia and not the hyoscine, because the greatest effect was found in conjunction with morphia gr. $\frac{1}{4}$. Hyoscine hydrobromide in considerably larger doses than used in this series has been shown to have no material effect on blood pressure or respirations as shown by Schwarz.⁴

Table No. 8 shows the reaction of the patients to the techniques of morphia-hyoscine

as compared with the morphia-atropine checks—whether quiet or restless, the output of urine, the kind of anesthesia and the amount of vomiting.

Three important things are brought out in this table: (1) that there is less gastric distress in these cases, as marked vomiting was present in only 33 per cent. of the morphia-hyoscine series as compared to 63 per cent. in the checks; (2) that hyoscine has no effect on kidney function, as there was a good output in every one of the 15 cases receiving 3 injections of hyoscine; (3) that there is an undesirable period of restlessness immediately following the operation in some cases, being more pronounced among those cases receiving 3 injections of hyoscine.

Table No. 9 shows the results of seminarcosis as brought out by the postoperative interview.

Of the 60 cases there was no interview in 27; of the 33 cases interviewed, there was only one that appeared to have been a failure. She maintained that she remembered all events and felt no effects whatsoever from the injections.

Only 17, or 51 per cent., of the cases remembered the administration of the anesthetic, and of this number 16 stated that they felt drowsy and in a receptive mood. The experience seemed more like a dream and was not associated with any fright or uneasiness.

At first the anesthetist experiences some difficulty in the administration of ether in these cases. Until surgical anesthesia is reached it is harder to judge the depth of the anesthesia, as the respirations are deeper and fuller. The stage of excitement is usually eliminated, the pupils may be dilated or contracted, according to the patient's susceptibility to the drugs in question. When morphia gr. $\frac{1}{4}$ and hyoscine 2 cc. are given the morphia as a rule takes precedence and the pupils are found contracted. After a little experience the anesthetist becomes familiar with the action of the drugs and then prefers their administration. The beginner does not give less ether than normally, but the experienced anesthetist does.

Some difficulty has been experienced in the emptying of the bladder. At first the patients were encouraged to void after the first injection and if unable to do so were catheterized following the second injection. This was found rather unsatisfactory because catheterization was usually necessary, and in case of delay in the operation the bladder would often fill to the extent of interference in deep pelvic work. At present the patients are catheterized in the operating room routinely preceding the preparation and the results have been very satisfactory.

CONCLUSIONS.

1. That the choice of the technique depends upon the individual case. Better results are obtained with the use of a third injection of hyoscine in cases where an anesthetic is not given.

2. That the disadvantages from the administration of these drugs preliminary to operation are practically nil, being confined to slowing of respiration in the cases of undersized patients and to restlessness encountered in a few cases when the patient first comes out from

TABLE No. 8 (ABDOMINAL CASES)

Method	No.	Anesthesia		Conditions		Output		Vomited		
		Ether	Nitrous oxide Oxygen and ether	Quiet	Restless	Good	Scanty	None	Mod'rate	Severe
Morphia gr. 1/4 Hyoscine 2 c.c.	27	15	12	86%	14%	86%	14%	7%	59%	33%
Morphia gr. 1/6 Hyoscine 2 c.c.	18	12	6	77%	23%	88%	12%	11%	55%	33%
Morphia gr. 1/6 Hyoscine 3 c.c.	15	6	9	47%	53%	100%	None	13%	53%	33%
Checks										
Morphia gr. 1/4 Atropine gr. 1/150	8	6	2	No record	No record	75%	25%		37%	62%
Morphia gr. 1/6 Atropine gr. 1/150	17	16	No record for one	No record	No record	76%	23%		35%	64%

TABLE No. 9 (ABDOMINAL CASES)

Cases remembered events as follows:

Seminarcosis	No.	No Inter-view	3 Injec-tions	2 Injec-tions	1 Injec-tion	Trip to operating room	Begin-ning of Anes.	Events remem-bered but drowsy	Failure
Morphia gr. 1/4 Hyoscine 2 c.c.	27	13		85%	100%	71%	57%	50%	7%
Morphia gr. 1/6 Hyoscine 2 c.c.	18	5		76%	100%	61%	61%	61%	None
Morphia gr. 1/6 Hyoscine 3 c.c.	15	9	16%	83%	100%	16%	16%	16%	None
Total	60	27				57%	51%	46%	3%

under the anesthetic. This disadvantage is due to failure to graduate the dose of morphia-hyoscine rather than to the method itself.

3. That the advantages of the drugs are many:

- a. Restlessness, fear and worry preceding the operation are eliminated.
- b. A quieter induction, with a smoother anesthetic obtained with the use of less ether.
- c. A smoother postoperative course with less nausea and vomiting.

d. That many minor operations may be done without additional anesthetic, making the procedure of great value in cases where a general anesthetic is contraindicated.

REFERENCES.

1. McGinn, Med. & Surg., 1:148; April, 1917.
 2. Cushing, Text Book on Pharmacology and Therapeutics.
 3. Cushing, Text Book on Pharmacology and Therapeutics.
 4. Schwarz, Scopolamin—Narcotin Seminarcosis. The Journal of the Mo. State Med. Association, Dec., 1915. Vol. XII. P. 541.
- 313 Wall Bldg.

TROPICAL BRONCHOPULMONARY MYCOSIS.—The cases observed by Ralph W. Mendelson, Bangkok, Siam (*Journal A. M. A.*, July 9, 1921), have come to necropsy as the result of some intercurrent medical, or other, accident; cultures of many lungs have been taken in order to obtain a pathologic picture the result of a pure mycotic infection. On cut sections, the lungs resemble very much a tubercle infection. Although the blood supply is completely cut off from these fibrotic-like growths, yet there seems to be no necrosis, and it is possible that the surrounding tissues indirectly supply nourishment. As many different specimens have been examined without finding any lungs in which necrosis has taken place, it would seem that the fungi, at least those found in Siam, have in the beginning a stimulating effect on the tissue cells. In view of the fact that mixed infections of all standing present on postmortem examination the same firm connective tissue tumors, it is doubtful whether these growths, except under the most adverse conditions, break down. The acute cases as well as the chronic may be mild or severe, but the average case presents signs and symptoms not at all unlike those of an acute bronchitis. There is some fever, irritating cough, expectoration of large amounts of mucous or mucopurulent sputum and a general sensation of illness. The chronic cases, on the other hand, are to be differentiated from tuberculosis and spirochetosis. The symptomatology of an average chronic mycotic lung infection produces all of the signs and symptoms of a tubercle infection even to true hemoptysis, which would tend to show that these mycotic tumors do, under favorable conditions, break down and degenerate. A diagnosis can be made only after laboratory examinations. The prognosis and treatment of the chronic cases is not unlike that in tuberculosis. From a public health point of view the only difference between tuberculosis of the lungs and bronchopulmonary mycosis is one of degree. They are both contracted in the same way. They are both incapacitating, and are both preventable. Mendelson suggests that it is not improbable that many cases of supposed tuberculosis of the lungs, especially in some of the Southern states of the United States, would on careful bacterial examination prove to be cases of bronchopulmonary mycosis.

ENLARGEMENT OF SPLEEN IN EXPERIMENTAL ACIDOSIS.—The results obtained by Raymond Householder, Chicago (*Journal A. M. A.*, June 4, 1921) indicate that: (a) The subcutaneous injection into guinea pigs of hydrochloric acid produces an acidosis demonstrable by a decreased ability of the plasma to combine with carbon dioxide as estimated by the Van Slyke method.

(b) The animals have a varying susceptibility to such poisoning with acid, and the organism can be made to adapt itself slightly to gradually increased doses of acid.

(c) All experimental acidosis can produce an anemia associated with an enlargement of the spleen.

2. They suggest that the enlarged spleen may be due either to an increase in its function as a hemoglobin-destroying organ as a result of the hemolysis, or as a result of its hyperfunction as a hematopoietic organ in combating the anemia accompanying an acidosis.

SPONTANEOUS PNEUMOTHORAX: REPORT OF A CASE WITH RECOVERY.—A case of pneumothorax occurring in a healthy person under ordinary circumstances is cited by P. J. McDonnell, Scranton, Pa. (*Journal A. M. A.*, December 30, 1922). It was likely due to the breaking of an adhesion from an old pleuritis. The hole in the lung closed in four hours, after which there were few unpleasant symptoms. There was no accompaniment of effusion or fever. In ten days the breath sounds began to return, and in three weeks there was almost complete expansion. The patient returned to his duties in two months. A recent physical and fluoroscopic examination revealed a lung with complete return of function except for a slightly lessened expansion.

PANCREATIC CYST FOLLOWING CHOLECYSTECTOMY.—The case reported by Max Ballin and Harry C. Saltzstein (*Journal A. M. A.*, May 28, 1921) shows clinically pancreatitis, cholelithiasis, cholecystitis and, subsequent to cholecystectomy, the development of a pancreatic cyst. The authors suggest that perhaps the conclusion is justified that in cases of pancreatitis complicating gallbladder disease, especially if there is pronounced infection, one of two methods should be followed: (a) cholecystostomy with drainage for several weeks, or (b) cholecystectomy with additional drainage of the common duct.

DISLOCATION OF SACRO-ILIAC JOINT.—Alexander Gibson, Winnipeg, Manitoba (*Journal A. M. A.*, May 28, 1921) cites the case of a boy, aged 8, who was struck by an express train and sustained a dislocation of the left sacro-iliac joint. A roentgenogram showed the separation between the sacrum and the ilium. A curved incision exposed the region of the injury from behind, and with an electric saw, the portion of the ilium which projected posteriorly was removed. The adjacent portions of bone—sacrum and ilium—were then freshened, and the detached piece of bone was jammed in between them, no sutures being used to keep the graft in place. The patient was returned to bed with a pelvic binder, and was kept recumbent for two months. He can walk and run as well as he ever could. He has no pain and no stiffness in the hip region.

INFLUENCE OF DIET ON BLOOD GROUPING.—John Harper and Walker C. Byron, Washington, D. C. (*Journal A. M. A.*, December 30, 1922), state that diet apparently influences the serum of Group III blood. Diet apparently interferes with the proper agglutination of cells of Group III blood in Group II serum.

**THE JOURNAL
OF THE
Missouri State Medical Association**

APRIL, 1923.

EDITORIALS**REPUTABLE AGAIN**

The reputable medical profession of Missouri may again lift its head, bowed in humiliation two years ago, and proudly face the reputable physicians throughout the country, for the legislature has restored the word reputable to the law governing medical colleges and the governor has signed the bill. It will become a law in ninety days.

The bill had a very stormy voyage through the legislature. In the House of Representatives the advocates of the low grade medical school were supported by a number of legislators, some of whom had large followings, and when called up for passage was defeated by a vote of 60 to 40. The constitutional majority required to pass a bill is 76. The friends of the bill succeeded in obtaining a reconsideration the next day and on roll call passed it by a vote of 78 to 19. This was accomplished by accepting an amendment providing that the courts may review the proceedings of the board if any applicant who was aggrieved by the action of the board should appeal to the courts. The bill then went to the Senate where it again met violent opposition by a few members. It had been passed by the Senate as originally introduced by a vote of 20 to 11. When it came back to the Senate with the amendment adopted by the House it passed by a vote of 23 to 2.

A nurses' bill was passed, providing that registered nurses should have one year of high school preliminary education and two years of hospital training, and gives practical nurses recognition by allowing them to use the title "Practical Nurse," or "P. N." This bill was a committee substitute for seven or eight individual bills.

Other bills which enlisted our attention, whether for or against them, died on the calendar. Among these are the following:

Senate Bill No. 138, the Medical Practice Act.

The chiropractic bills, of which there were three, consolidated into one by committee amendment.

Senate Bill No. 87 and House No. 254, compelling state, county and city hospitals to open their doors to practitioners of any sort of healers licensed by the state.

House Bill No. 616, creating a state board of medical examiners composed of seven members, six of whom must be members of the faculties of the six medical colleges operating in the state, the seventh not to be a member of the faculty of any medical college. This bill died in committee.

Senate Bill No. 100, House Bill No. 252, creating a State General Hospital at Columbia, to be operated in connection with the reestablishment of the four-year course in medicine.

Members will be interested in knowing how their Representatives and Senators voted on Senate Bill No. 131, so we publish the roll call on another page.*

When purchasing tickets for the annual meeting, Joplin, May 8, 9, 10, be sure to ask the ticket agent for a certificate. Deposit this certificate at the Registration Desk. If 250 certificates are deposited it will enable us to buy the return ticket at one-half the regular fare. Bring the ladies.

THE PSYCHIATRIC CLINIC

In the slow organization of human society there has been a gradually increasing pressure on the individual members to make them conform to the customs of the herd, and those whose conduct and behavior was at variance with accepted standards have been made to suffer a penalty of adequate severity. When customs become formulated and adopted in the form of statutes, we call them laws. We speak of a new law although we have only formulated a custom. In the past—and often in the present—the irritation of the herd has been expressed in violent action against offenders. Punishment was an expression of vengeance. Vengeance has not yet disappeared and shows its ugly features in the numerous lynchings in this country. At times it appears in the formal verdicts of juries, which are cross-sections of the herd and serve to express its sentiment.

Slowly the idea is growing that the individual offender should be the object of study, not the offense or its corresponding penalty. We know now that there are all gradations of mental and physical equipment, all degrees of capacity to conform to lines of good conduct.

Out of this idea has come the psychiatric or child guidance clinic. It deals chiefly with children because it is known that the criminals of today are recruited from the delinquent children of yesterday.

Physical, psychiatric, psychological, neurological and social examinations are made, the emotional life is explored, temperamental factors are evaluated. The home and heredity, the school, the play places and playmates, the

* See page 141.

shop if employed, all are carefully looked over. And out of this general survey we discover that a percentage are frankly feeble-minded and could not be expected to carry themselves well in community life. A few are insane. A large number are psychotic — fairly well or quite well endowed with mental power, but with mental twists of astounding variety. Many are handicapped physically.

Treatment is planned from many angles. It is attempted to know all available agencies for betterment. A hospital may come first, or a tuberculosis or eye clinic; a Big Brother or a Big Sister, a religious organization, or a Boy Scout group may be tried. But running like a red thread through all the efforts is treatment, not punishment; not what to do to get even with an offender but how to help him not to offend.

Such are the aims of the St. Louis Psychiatric Clinic established by the National Committee for Mental Hygiene and recently made a part of the public health activities of the City of St. Louis by an ordinance passed by the board of aldermen.

When purchasing tickets for the annual meeting, Joplin, May 8, 9, 10, be sure to ask the ticket agent for a certificate. Deposit this certificate at the Registration Desk. If 250 certificates are deposited it will enable us to buy the return ticket at one-half the regular fare. Bring the ladies.

REDUCED RATES TO JOPLIN SESSION

We are endeavoring to secure a reduced fare for the annual session of the Missouri State Medical Association at Joplin, May 8, 9 and 10, and we believe the Southwestern Passenger Association will grant our request. Of course it will be conditioned upon a certain number of members, their families and exhibitors who may attend the session.

In order that members may benefit by the reduction in the fare it is necessary that all who purchase tickets shall ask the ticket agent for a certificate at the time of purchase. This certificate must be deposited at the Registration Desk upon arrival at Joplin. The railroad fare from St. Louis to Joplin, one way, is \$11.98, Pullman \$3.75; from Kansas City to Joplin the railroad fare, one way, is \$5.54, Pullman \$3.00.

The Jackson County Medical Society has arranged for special sleepers on the Frisco Railroad for the Joplin meeting, one to leave Kansas City at 5:30 p. m. Monday, May 7, arriving at Joplin at 11 p. m., the other leaving Kansas City at 11:40 p. m. the same day and arriving at Joplin 6:15 the next morning. Members of the State Society going through

Kansas City who wish reservations on these specials are requested to write to the Secretary of Jackson County Medical Society, care of General Hospital, Kansas City.

When purchasing tickets for the annual meeting be sure to ask the ticket agent for a certificate. Deposit this certificate at the Registration Desk. If two hundred and fifty certificates are deposited it will enable us to buy the return ticket at one-half the regular rate.

THE CERTIFICATE FROM THE AMERICAN BOARD OF OPHTHALMIC EXAMINATIONS

Now that there is offered so fair and excellent a means to acquire a certificate of ability and efficiency in ophthalmic practise, it is unfortunate that so few specialists have taken advantage of it. The American Board for Ophthalmic Examinations composed of the ablest and best known ophthalmologists in the country has been offering since the year 1917 to examine all physicians in good standing who desire to obtain recognition as eye specialists. So highly valued has the approval of this board become, that now it is impossible without it to become a member of the American Academy of Ophthalmology and Oto-Laryngology, of the American Ophthalmological Society or a member as ophthalmologist of the American College of Surgeons.

The Oculist Consulting Staff of the Missouri Commission for the Blind is in need of all the competent oculists of the state to examine applicants for the blind pension. But how impossible to acquire any knowledge of the ability as oculists of the lesser known physicians practising ophthalmology in the smaller towns over the state. The possession of the certificate from the American Board for Ophthalmic Examinations would automatically put one on this consulting staff, that is, if the physician himself was willing.

Throughout Missouri there are about 120 physicians practicing eye work, or eye, ear and throat work exclusively. In addition there are about 60 more doing eye work in conjunction with general practise.

Of this number 180 physicians in all, there have but 20 obtained the certificate of the American Board for Ophthalmic Examinations. They are the following:

Dr. James Moores Ball.....	St. Louis
Dr. James G. Calhoun.....	St. Louis
Dr. Joseph W. Charles.....	St. Louis
Dr. Robert James Curdy.....	Kansas City
Dr. Arthur E. Ewing.....	St. Louis
Dr. John Green, Jr.....	St. Louis
Dr. John F. Hardesty.....	St. Louis
Dr. Wm. Frederick Hardy.....	St. Louis

Dr. Frank L. Henderson.....	St. Louis
Dr. Edward H. Higbee.....	St. Louis
Dr. John Ellis Jennings.....	St. Louis
Dr. Joseph W. Kimberlin.....	Kansas City
Dr. Harvey D. Lamb.....	St. Louis
Dr. Wm. H. Luedde.....	St. Louis
Dr. Lawrence T. Post.....	St. Louis
Dr. Martin H. Post.....	St. Louis
Dr. Wm. Ewing Shahan.....	St. Louis
Dr. Chas. W. Tooker.....	St. Louis
Dr. Meyer Wiener.....	St. Louis
Dr. Frederick E. Woodruff.....	St. Louis

It is earnestly hoped that many more specialists in Missouri will in the near future avail themselves of the opportunity to obtain this very valuable certificate of ophthalmic competence. In only this way can the ophthalmic standard in Missouri be raised. Those desiring information and application form necessary to obtaining the certificate of the American Board for Ophthalmic Examinations can obtain them by writing to Dr. Wm. H. Wilder, 122 South Michigan Avenue, Chicago.

When purchasing tickets for the annual meeting, Joplin, May 8, 9, 10, be sure to ask the ticket agent for a certificate. Deposit this certificate at the Registration Desk. If 250 certificates are deposited it will enable us to buy the return ticket at one-half the regular fare. Bring the ladies.

THE AMERICAN CHILD HEALTH ASSOCIATION

An important development in preventive medicine is the recent combination of the American Child Hygiene Association and the American Child Health Organization into one body known as the American Child Health Association. Mr. Herbert Hoover has been made president of the new association, and has brought into close co-operation with it the personnel and executive force of the American Relief Association, which has been doing such extensive work among the children in Europe for the past six years. In addition to continuing the field work and health education among school children now being done, the new organization plans to conduct a widespread campaign for better health conditions among children, using the public press, popular magazines, movies, and like methods of publicity. Although the new association is only a few months old the Commonwealth Fund has already made an appropriation of over \$300,000 to enable the association to establish three new child health demonstration centers, Fargo, N. D., being selected for one demonstration, the other two to be placed in the South and far West. The work of these three, together with

the Mansfield, Ohio, demonstration, which was started last year, will extend over a period of five years and will afford ample opportunity to demonstrate what can be done for children by applying health methods to a community. The entire trained personnel of the old organizations has been retained and Mr. Courtenay Dinwiddie of the National Health Council has been made executive officer of the new organization. The merging of these organizations doing health work among children will do much to clarify, harmonize, and extend the work that is now being done. That the health work will have competent and proper medical direction is assured by the presence of such men on the executive council as Doctors Holt and Van Ingen of New York, Dr. Hamill of Philadelphia, Dr. Richard Smith of Boston, and others. A medical committee is being which will have the supervision of all pamphlets, literature, and the like to be issued and distributed through the press.

NEWS NOTES

MR. JOHN T. HETHERLIN, SR., father of Dr. Guy T. Hetherlin of Louisiana, died at the home of his son, March 16, at the advanced age of eighty-three years. Dr. Hetherlin's father spent his early life as a teacher and held certificates from the State Boards of Pennsylvania and Missouri.

DR. ROBERT P. C. WILSON, Platte City, former superintendent of the State Colony for the Feeble-minded and Epileptic at Marshall, announces the limitation of his practice to epilepsy and allied conditions, and the establishment of a home sanitarium, "Cedarhurst," near Platte City, where he is prepared to accommodate a limited number of patients.

DR. W. T. COUGHLIN of St. Louis was a guest of the Tri-Cities Medical Association at Davenport, Iowa, February 15, where he delivered an address on "The Modern Treatment of Trigeminal Neuralgia." He was also invited to address the Linn County (Iowa) Medical Society at Cedar Rapids, which invitation he accepted and gave the members of that body an address on "Pains about the Head and Face."

THE next examinations by the National Board of Medical Examiners will be held on the following dates: Part I, June 25, 26, 27, 1923. Part II, June 28, 29, 1923. Part I, September 24, 25, 26, 1923. Part II, September 27, 28, 1923. All applications for these

examinations must be made on or before May 15th. For further information address Dr. J. S. Rodman, Secretary, 1310 Medical Arts Building, Philadelphia, Pa.

A GROUP of physicians in Quincy, Ill., have combined for the purpose of establishing a diagnostic institute under the name of the Quincy Diagnostic Institute. The purpose of the Institute is purely diagnostic, no treatment of a case being undertaken by the members of the Institute. The patient is returned to the referring physician after the diagnosis has been made and further disposition of the case is in his hands. Dr. Harold Swanberg and Dr. Frank Cohen are the directors of the Institute.

GOVERNOR HYDE has appointed Dr. Harvey D. Lamb, of St. Louis, Ophthalmologist to the Missouri School of the Blind to succeed Dr. Joseph W. Charles, whose term has expired. Dr. Lamb has been associate ophthalmologist at the school for a number of years. During the service of Dr. Charles the school adopted a rule requiring a Wassermann test on every new pupil admitted to the institution, which has proved a source of much valuable information. Statistics based on these examinations during the past six or eight years have been published.

MEMBERS are urged to make hotel reservations as soon as possible for the Joplin meeting, May 8, 9 and 10.

Hotel rates follow—all European plan:

CONNOR HOTEL (Headquarters)

Per Day

Single room, without bath.....	\$2.00 to \$3.50
Double room, without bath.....	3.50 to 4.00
Single room, with bath.....	2.50 to 4.50
Double room, with bath.....	4.00 to 6.50
Suite, single.....	5.00
Suite, double.....	7.00

YATES HOTEL

Single	\$1.25 per day
Double	2.00 per day

Y. M. C. A.

Single	\$1.00 per day
Double	2.00 per day

KEYSTONE HOTEL

\$1.50 to \$2.00 per day.

THE attention of members is invited to the announcements, beginning with this issue, of several large firms whose business dealings with the profession have always been harmonious with the ideals of ethical medical practice. It is a pleasure to number them among our

supporters and we invite the members to read their announcements so as to be familiar with their products when in the market for such goods. The firms are:

Eli Lilly & Company, of Indianapolis, Ind., manufacturing pharmacists. This firm is well known to Missouri physicians, for they have long maintained a St. Louis office and for many years the "Lilly Brand" has been known as a guarantee of quality and dependability.

John T. Milliken & Company, of St. Louis, manufacturing chemists, one of the oldest chemical companies in the West, a home institution whose products merit the fullest confidence of the physician.

The Hanovia Company, of Newark, N. J., pioneers in the introduction of thermal apparatus in the treatment of disease. Light therapy is making rapid strides as an effective therapeutic measure so that perfection of the apparatus is essential to the success of the treatment.

THE Missouri State Medical Association holds its convention in Joplin this year, May 8, 9 and 10. Here are some of the plans that the Jasper County Medical Society has made for your entertainment:

May 8—Morning: Get Together—Registration—Scientific Papers—House of Delegates. Afternoon: Scientific Papers—Tea at Connor for Ladies. Night: President's Reception at Masonic Temple; afterwards a Dance atop the Connor.

May 9—Morning: Scientific Papers—Clinics at St. John's, Joplin, and the Jasper County Tuberculosis Hospital in Webb City—Golf Tournament—Luncheon at Oak Hill Golf Club for Ladies. Afternoon: Scientific Papers—Drive over the beautiful Ozark country, "the Land of a Million Smiles"—Golf Tournament. Night: Cabaret Party for Doctors—You have never seen a Joplin Cabaret — don't miss it. Special entertainment for Ladies.

May 10—Morning: Scientific Papers—Golf Tournament. Afternoon: Scientific Papers—Drive through the Mining District—Golf Tournament—Lunch at Connor for Ladies. Night Boxing Match: Two ten-round bouts and two five-round bouts with some real honest fighters in the ring.

Now, doctor, we have spent two months getting ready for this so you can spend three days enjoying it.

A cure for whatever ails you is guaranteed. Money refunded if we do not please. This will be the largest and best convention that we have ever had. Come and watch us put it over.

J. I. TYREE, Joplin,
Secretary.

R. M. STORMONT, Webb City,
President.

OBITUARY

WILLIAM AUGUSTUS HARDAWAY, AM., M.D., LL.D.

In the sudden death of Dr. Wm. A. Hardaway, at midnight of February 3, 1923, the American profession lost a valued and distinguished member. Born on June 8, 1850, at Mobile, Ala., of a well-known and influential family, he was brought to St. Louis at the age of seven years, which city remained his home to the end. He received his literary education at the University of Virginia, the mother of many who like him achieved eminence, each in his own pursuit. He never outlived the refining influences of the classic atmosphere of Charlottesville, but cherished and nurtured them so that they largely contributed to the traits and tastes of the mature man.

He entered upon the study of medicine at the St. Louis College of Physicians and Surgeons. This school had no connection with the present concern of the same name, but was an offshoot of the Humboldt Medical College. These schools have long since passed out of existence, but students of local medical history will agree that they were organized according to scientific ideals far ahead of their time in America. He was graduated from the Missouri Medical College in 1870.

Hardaway's insatiate love of reading was probably one of the causes which led him to turn his attention to diseases of the skin, a subject at that time far removed from the beaten path of medical studies. While well-nigh totally neglected in the West, in the East it had only begun to attract a few students in larger centres of learning. In fact, the world over, dermatology was still in its swaddling-clothes and thus it became his fortune to watch and contribute to its development from the cradle to the position it occupies today as one of the most highly developed branches of medical science. He might well have said *quaerere ipse vidi, et quorum pars magna fui.*

Dr. Hardaway was one of the founders, in 1876, of the American Dermatological Association. Of these, Duhring, the Senior White, Taylor, Wiggleworth, Hyde, Atkinson, Piffard, the senior Heitzman and Keyes preceded him to their repose. For many years he continued a regular attendant at the annual meetings to which from year to year he looked forward with keen anticipation of the pleasure he derived from intellectual contact with his peers and the renewal of old friendships. In 1885 he was elected president.

Space is lacking to enumerate his contributions to clinical dermatology, which were many and important and made his name known to his fellow specialists throughout the civilized

world. He published eighty-one papers within a period of forty years. Among them was one describing prurigo nodularis for the first time, although under another title, while his discussion of papilloma cutis in the same year served to clarify and set in order what had been a confused jumble. One thing, however, will especially secure the transmission of his fame to future generations of dermatologists, namely, the electrolytic method. Originating (1875) with Dr. Charles E. Michel, of St. Louis, who used it for the destruction of "wild hairs" of the lids, it was introduced to dermatological practice by Hardaway (1877), who, let it be said, never failed to give Michel full credit for the invention. The fact none the less remains that had it not been for Hardaway the procedure would have remained unknown to dermatology. At first misunderstood at home and sneered at abroad as "American humbug" it has long since won full recognition, has found a wide range of application, and is in daily use the world over.

Among the volumes from his pen were the "Essentials of Vaccination" (1882), "Manual of Skin Diseases" (1890 and 1898), and "Cutaneous Therapeutics" (1907). He was joint editor, with Dr. L. Bolton Bangs, of the American Text-Book of Genito-Urinary Diseases, Syphilis, and Diseases of the Skin (1898), and contributed special articles to the Systems edited by Pepper, Keating, Hare, Morrow, Dennis and Park, to the Reference Hand-book of the Medical Sciences, to Gould and Pyle's Cyclopaedia of Practical Medicine and Surgery, to the American Text-Book of Diseases of Children and to the American Year-Book of Medicine and Surgery.

As a teacher he was clear and forceful, and took the keenest interest in this phase of his activities. Hundreds of practitioners throughout the Middle West and South were among his pupils during his long years with the Missouri Medical College, beginning soon after his graduation, and continuing after that school was merged with the Medical Department of Washington University and until he resigned his chair in 1910.

As a clinician Hardaway had few equals and no superiors. He took a lively interest in the therapeutic side, often reminding his younger associates that after all that was the aim and end of all medical science. He took much pleasure in communicating his knowledge to others, and while possessed of a great store of information as to the early history and later growth of his favorite study, he never lost a youthful interest and enthusiasm for the latest developments and refinements. Literally to his last day he continued his studies and kept abreast with the march of progress. From the fund of knowledge thus amassed

he was always ready to draw for the benefit of his friends. It was a rare treat as well as a precious privilege, consultation hours over, to sit in his office, having accepted a cigarette tendered with an engaging smile and a brief eulogy of the brand, and to hear him set forth his thoroughly digested ideas and the conclusions of his long and rich experience. His innermost scientific thoughts, which he might have hesitated to set down in cold print, he would at times convey to his intimates in unstudied phrase between puffs of smoke, probably interlarded with bits of reminiscence or apt illustrations drawn from his retentive memory.

This gift of memory, upon which we must admit he rather plumed himself, extended not only to his reading, allowing him often to cite a passage and give the reference, but also allowed him to recall the details of cases seen years before and the names of persons but casually known. He took little interest in the natural sciences not directly ancillary to medicine, and abhorred mathematics, but in the *belles lettres*, general literature, history and biography, his knowledge was not only all-embracing but extraordinarily exact. His store of precise information on the subject last named was a constant source of comment and wonder to all who enjoyed his intellectual companionship.

Dr. Hardaway's physical and intellectual tendencies were in sharp contrast, for while taking little pleasure in any form of bodily exercise, his mind was ever alert and occupied. Even his amusements were of a mental sort, such as the original "limericks" with which he regaled his friends within a day or two of his death. His flow of humor continued even in weariness and sickness. An inveterate punster and lover of anecdote, he never descended to the vulgar joke or shady story. His diverting tales and odd conceits could always have been rehearsed *pueris virginibusque*.

While enjoying a wide acquaintance, both within and without his profession, he was careful as to whom he admitted to his intimacy. To those, however, whom he counted among his friends his loyalty was unswerving and his affection secure. His courtesy was unfailing and his kindness but the outward expression of his attitude toward his fellow man.

While disliking crowds, he was known to many men. While never seeking popularity, he had many friends. While shunning notoriety, he achieved fame. He had no need to seek these things, which came to him as the natural result of his courtesy, his broad charity, and his attainments.—J. G.

OTIS TALBERT MOREY, M.D.

Dr. Otis T. Morey, of Salisbury, a graduate of the College of Physicians and Surgeons, Keokuk, 1898, died at his home March 14, 1923, following a general breakdown, the result of influenza.

Dr. Morey was born at New Canton, Ill., November 4, 1876. He received his preliminary education in the public schools at New Canton and after graduation from the medical college began to practice in his home town. He later practiced at Hot Springs, Ark., and Ponca City, Okla., and during the spring of 1909 he removed to Salisbury.

Dr. Morey served two terms as mayor of Salisbury and two years ago was elected coroner, which office he held until his death. He was commissioned a lieutenant in the Medical Reserve Corps during the World War serving at Fort Riley, Kans., Fort Custer, Mich., and was preparing to go to France when the armistice was signed. He was chosen commander of the American Legion Post at Salisbury. He was a member of the Knights of Pythias, Odd Fellows, Masonic, Woodmen, Royal Neighbors, Eastern Star and Rebecca lodges and had been an officer in nearly all of them. He had been a member of Chariton County Medical Society for a number of years, having served that body in various official capacities. He was a member of the Baptist Church and the funeral was conducted from the Baptist Church at Salisbury to Clifton Hill Cemetery.

CHARLES COLUMBUS SIMMONS, M.D.

Dr. Charles C. Simmons, of Bunker, Mo., a graduate of Jefferson Medical College, Philadelphia, 1894, died at St. Luke's Hospital, Kansas City, February 21, 1923, following a long illness, aged fifty-four years. He was a member of Reynolds County Medical Society and served as its president in 1920. He served as Captain in the Medical Reserve Corps of the Army during the World War.

ENOCH KNABB, M.D.

Dr. Enoch Knabb, of Springfield, a graduate of Keokuk Medical College, Iowa, 1895, died February 19, 1923, of cerebral hemorrhage, aged fifty-five years. He was a member of Greene County Medical Society for the past fifteen years.

EDWARD BAUMHOFF LeSAULNIER, M.D.

Dr. Edward B. LeSaulnier, of Eureka, a graduate of the St. Louis School of Pharmacy, 1894, and the Barnes Medical College, St. Louis, 1910, died March 9, 1923, aged forty-seven years.

Dr. LeSaulnier served in the Army as hospital steward during the Spanish-American War and was formerly a member of the Staff of Barnes College of Pharmacy. He was a member of the Masonic Lodge and St. Louis County Medical Society.

OMAR E. AMOS, M.D.

Omar E. Amos, of Jefferson City, died January 9, 1923, at the age of forty-three years. He was born near Russelville, Mo., in 1880, graduated from the local high school and from Hooper Institute at Clarksburg. He then took up the study of medicine at the American Medical College, St. Louis, receiving his diploma in 1904. He practiced at Lohman, Mo., until 1912, when he moved to Jefferson City. About this time he took two post-graduate courses at the New Orleans Polyclinic. He was coroner of Cole County from 1908 to 1912. During the World War he was examining physician for the local draft board and served faithfully in that capacity. He was a member of the staff of St. Mary's Hospital at Jefferson City, a member of the Cole County Medical Society and the Missouri State Medical Association. Morally he was of high repute, being a Mason and a member of the Baptist Church. He enjoyed a large practice and at his death the people of Cole County lost a conscientious physician.

CORRESPONDENCE

WANTED: RETIRED MEDICAL OFFICER

St. Louis, Mo., March 19, 1923

To the Editor:

Referring to our conversation by telephone a few days ago, you are advised that this office desires to get in touch with a retired officer of the Army Medical Corps, preferably a lieutenant or captain, with the view of having the officer recalled to active duty and assigned to the Army Recruiting Office at Jefferson Barracks for the examination of recruits. It would be desirable if the officer's place of residence is St. Louis or vicinity. Also it must be plainly understood that no definite promises can be made at the present time. Negotiations will be opened with the view of having the assignment made, provided a suitable officer who desires the detail can be located.

Will you please give this matter as much publicity as possible?

Prospective applicants should write directly to this office.

Thanking you for your courtesy, I am,

Very respectfully,

E. E. BENNETT, Major.

Recruiting Officer, United States Army,
Third and Olive Streets.

MISCELLANY

VOTE OF SENATORS AND REPRESENTATIVES ON SENATE BILL No. 131 (REPUTABLE MEDICAL COLLEGE)

Following is the vote of the Senators on Senate Bill No. 131 on the first roll call, March 16:

Ayes: Anderson (of Scott County), Bagby, Brogan, Brookshire, Brownlee, Casey, Cave, Cunningham, Farris, Gordon, Hamlin, James, Kinney, McCawley, McMurry, Painter, Pickett, Robinson, Snodgrass, Whitecotton.

Noes: Anderson (of St. Louis), Bennett, Brunk, Caulfield, Collins, Depelheuer, LaFavor, Proctor, Ralph, Tout, Warner.

Absent: Hostetter, Irwin, Penzel.

Following is the vote in the House of Representatives on March 21 when the bill failed to pass:

Ayes: Armstrong, Asotsky, Barbour, Bell, Botts, Bowman, Bush, Chase, Cockrum, Corwin, Crawford, Dale, Drury (of Ste. Genevieve), Edwards, Gallogay, Grant, Hains, Hodgin, Howell, Hull, Inglish, Jackson, Job, Johnson, Judson, McGregor, McReynolds, Maxey, Miller (of Platte), Mitchell, O'Donnell, Ogilvie, Peck, Pence, Peters, Pritchard, Rigney, Rollins (of Boone), Rollins (of St. Louis), Roney, St. Clair, Shelton, Shepard, Shoemaker, Smith (of St. Louis County), Toolis, Tucker, Turner, Van Cleave, Wetzel, Wilhite, Wilson, Winfrey, Wisdom, Woltcott, Wood, Wren, Yates, Mr. Speaker.

Noes: Bales (of Shannon), Black, Brumley, Buster, Case, Cottrell, Doerner, Donnelly, Drury (of Putnam), Goodnight, Highleyman, King, Lay, Lehr, McClelland, McLaughlin, Marlin, Morrison, Nelson, O'Brien, Plassmeyer, Powell, Proffer, Rees, Reid, Schnuck, Severns, Shelman, Smith (of Andrew), Steiner, Stivers, Swiers, Thiebaud, Ward, Weber, Whitaker, Williams (of Morgan), Williams (of Texas), Witty, Young.

Absent: Allison, Bales (of Newton), Bulger, Campbell, Cary, Conkling, Cordry, Cross, Farris, Freeland, Goodenough, Green, Heege, Henderson, Hopkins, Houston, Howard, Huber, Hunt, Kendell, Kester, Long, Lorts, McGee, Manning, Marks, Mecker, Meyer, Miller (of Oregon), Moody, Nettle, Niedorp, Pelts, Porter, Rogers, Roos, Ross, Roy, Russell, Smith (of Jackson), Smith (of St. Louis City), Stanton, Straub, Summers, Sutton, Taylor, Tedrick, Wagner, Weinrich, Whitecotton, Winter.

Following is the vote on March 22, when the bill passed with the amendment:

Ayes: Allison, Armstrong, Asotsky, Barbour, Bell, Botts, Bowman, Bush, Chase, Cockrum, Corwin, Crawford, Dale, Doerner, Donnelly, Drury (of Ste. Genevieve), Edwards, Freeland, Galloway, Goodnight, Grant, Hains, Hodgin, Hopkins, Howell, Hull, Inglish, Jackson, Job, Johnson, Judson, McClelland, McGregor, McReynolds, Manning, Maxey, Miller (of Platte), Mitchell, Nettle, O'Brien, O'Donnell, Ogilvie, Peck, Pence, Peters, Pritchard, Rigney, Rollins (of Boone), Rollins (of St. Louis), Roney, Russell, St. Clair, Shelman, Shelton, Shepard, Shoemaker, Smith (of Jackson), Smith (of St. Louis County), Divers, Summers, Sutton, Toolis, Tucker, Turner, VanCleave, Ward, Weber, Wilhite, Williams

(of Texas), Wilson, Winfree, Wisdom, Wolcott, Wood, Wren, Yates, Mr. Speaker.

Noes: Bales (of Shamon), Buster, Case, Cottrell, Drury (of Putnam), King, Morrison, Nelson, Plassmeyer, Powell, Reid, Schinck, Severns, Smith (of Andrew), Swiers, Thiebaud, Whitaker, Williams (of Morgan), Young.

Absent: Bales (of Newton), Black, Brumley, Bulger, Campbell, Cary, Conkling, Cordry, Cross, Farris, Goodenough, Green, Heege, Henderson, Highleyman, Houston, Howard, Huber, Hunt, Kendall, Kester, Lay, Lehr, Long, Lorts, McGee, McLaughlin, Marks, Marlin, Meeker, Meyer, Miller (of Oregon), Moody, Niedorp, Pelts, Porter, Proffer, Rees, Rogers, Roos, Ross, Roy, Smith (of St. Louis City), Stanton, Steiner, Straub, Taylor, Tedrick, Wagner, Weinrich, Wetzel, Whitecotton, Winter, Witty.

Following is the final vote in the Senate on March 23 when the bill passed and was made ready for the governor's signature:

Ayes: Anderson (of St. Louis), Anderson (of Scott), Bagby, Bennett, Brogan, Brookshire, Brownley, Caulfield, Cave, Collins, Cunningham, Depelheuer, Farris, Gordon, Hamlin, Kinney, McCawley, Pickett, Robinson, Snodgrass, Tout, Warner, Whitecotton.

Noes: Irwin, Ralph.

Absent: Brunk, Casey, Hostetter, James, LaFavor, McMurry, Painter, Penzel, Proctor.

THE SAN FRANCISCO CONVENTION SESSION OF THE AMERICAN MEDICAL ASSOCIA- TION AS A STARTING POINT FOR VARIOUS TOURS

The California Convention Headquarters of the American Medical Association, working with the various tourist agencies, civic and commercial organizations, are arranging plans whereby the San Francisco Convention will be the starting point for a number of tours.

One of these will be a three weeks' trip to Honolulu, on a special boat touching at all the principal ports, including the Leper Colony, and returning to San Francisco.

Another trip under contemplation is up the West Coast of the United States to Alaska and return, allowing returning passengers to leave the boat at Vancouver and travel over the Canadian Pacific east, or at Seattle over the Great Northern railroad; at Portland and thence east by a number of lines or to San Francisco and Los Angeles or San Diego and back east by any of the numerous lines; or connecting at San Francisco with boats that will return east through the Panama Canal.

Arrangements are also being planned by which persons may begin an entire Oriental tour, starting from the convention a day or so after its close. These trips will include Japan, China, the Philippine Islands and return to San Francisco, or one may go through the Suez Canal and Europe.

In fact, any and all sorts of combinations of tours to take up as much vacation as one cares to use and to any part of the world will be one of the features easily arranged in connection with the convention.

Clothing for California Comfort

Regarding the climate and character of clothing to be worn at the time of the meeting the last week in June, it is likely that at this time of the year there will be a certain amount of wind, some fog, and the evening will be quite chilly. Rain is not expected at this time of year, and the days will be pleasant and delightful.

Persons coming to the annual meeting should bring overcoats and evening wraps; furs are worn by San Francisco ladies in the evening at this time of year. In the southern part of the state and the central valleys the climate will be very much warmer, corresponding somewhat to the summer climate in the Eastern states. In the mountain districts and the mountain resorts the climate will more nearly approach that of San Francisco. Persons who expect to travel much in this state will be more comfortable with the ordinary weights of underclothing and with overcoats and wraps to meet the varying climates in different parts of the state.

Railroad Rates

The following summer tourist round trip rates are submitted, on what is thought to be thoroughly reliable information, as approximately the rates that will be in effect for the annual session: from Chicago, \$86; from Kansas City, \$72; from St. Louis, \$81.50.

These rates will permit stopovers, and will also permit return by a different route than that used in going to San Francisco. Those desiring to return by way of the northern routes will be required to pay \$18 additional.

Persons interested in any of these points or in any other matters connected with their trip to California are requested to write W. E. Musgrave, Chairman of the Local Committee of Arrangements, 806-809 Balboa building, San Francisco.

AN INDISPENSABLE PROFESSION

Holland, Ark., is but a very short distance from the world-famed Hot Springs. From New York and San Francisco pilgrims make weary pilgrimages to that shrine of the afflicted for cure of some of the ills that flesh is heir to, and often they are not disappointed. But even on the warm crust, out of which come the gushing waters of relief, the practicing doctor is still found to be an indispensable man in a community. As evidence, we need but quote the Holland correspondent of the Benton (Ark.) *Courier* in writing to that enterprising county paper: "We are proud that Dr. C. S. Allen, a well-known physician, has moved into our community. It is getting to where a person can't tell when he will need a good doctor."

Evidence of this plain truth has been afforded in many parts of the world, and most recently in the northwestern part of Arkansas, where some bitter medicine has had to be administered to men suffering with a distemper, and who couldn't "tell when they needed a doctor." And at the very gates of Hot Springs a good doctor is as indispensable to the good people of a community as the Hot Springs are to the 400 of New York or the children of the Argonauts in Frisco.

The people of Holland need a good physician in their daily lives, and, perhaps more often, their nightly experiences. It is his ear which must catch the first wail of the new-born child. He must be called when, a few years later, the little one he ushered into life is threatened with its loss by a midnight attack of croup. It is his hands which must give first aid when surgery is needed. And, as to all those many ills that flesh is heir to, the countryside around Holland, like all the rest of the world, will be long in abandoning the practicing physician for the mental philosophy of "every day in every way, I'm getting better and better." Even at the gates of the modern Siloams, and in the presence of what is called New Thought, the doctor of medicine will long constitute an indispensable profession.—St. Louis *Globe-Democrat*.

IDEALS AND ACCOMPLISHMENTS OF MEDICAL ORGANIZATION*

JOHN A. WITHERSPOON, M.D.

NASHVILLE, TENN.

President Graves: Our guest of honor is compelled to leave early tonight, on account of illness in his family, and because of the fact that he has two speaking engagements tomorrow on his way home. For that reason we shall change the order of the program somewhat and call for the address of the evening as the first number.

Our honored guest needs no words of introduction from me. He is known wherever the spirit of medical organization, medical achievement and medical attainment finds a place, and that is everywhere in the civilized world. He is rich in honors, for many years a member of the Council of Education of the American Medical Association, for many years a member of the House of Delegates, and finally, in 1914, the President of the American Medical Association. But whatever honors may have come to him, whether from the medical profession or in his connection with the great Vanderbilt University at Nashville, Tenn., I feel that I may say that our guest prizes more highly than anything else that has come to him in this life in the way of honor, the simple membership in his local medical society. (Applause.) And in this sense and this spirit it is my pleasure and my privilege to present to you Dr. John A. Witherspoon, of Nashville, Tenn. (Applause.)

Dr. Witherspoon: Mr. President and ladies and gentlemen of the St. Louis Medical Society: I would be derelict indeed if I did not express to you the sentiments in my heart, and say that I feel more grateful than you know for the honor you have paid me in conferring this pleasant duty upon me. I want to say that I never feel more at home, nor have I ever found the time, in my long service in medicine, when it was not a privilege to speak for organized medicine. The president has said that one of the highest honors that I feel is membership in my local society. Gentlemen, I do not realize, even at my time of life, how much good has come to me from that association with my fellows. I have tried in my long service in medical work—and it has been my privilege now for over thirty years to be a teacher of medicine—to help in the organization of medicine, to assist in just what I am here tonight to try to do, that is, to show you how your friends away from here regard you. I hope that I may say a few words that will carry to your hearts that feeling of good fellowship that should exist in this great army of men who are God given, who are members of the profession that is the equal if not superior to every other in the world. (Applause.)

My friends, I have often thought that in the whole world we have been very lavish in building monuments to our great men. If you have ever stopped to think about it, you will realize that our warriors have all had honors paid them, and monuments built to their memories; our great statesmen have been remembered, but how few of the honors, outside of our own profession, have been conferred on the men who, night and day, from the time they started to this good day, have stood as the bulwark of health and prosperity in every country they live in. No nation is more powerful, my brother doctors, than that nation that has good doctors! I want to say to you, gentlemen, that when invasion and epidemics come sweeping with the scythe of death into

communities, paralyzing commerce, absolutely ruining the equilibrium of the citizenship, no man has ever seen a doctor turn his back on them. He has stood firm until today your fine city is protected from the ravages of those desperate illnesses that have followed up the Mississippi River and blanched the cheeks of the bravest.

Why is it, gentlemen, that cholera is no more? Why is yellow fever now a thing of the past? Why is it that smallpox is under control? Why is typhoid fever being lashed to the main? Why is tuberculosis dropping off, until its mortality is not fifty per cent. of what it used to be? And cancer—one of the speeches I hope to make tomorrow, in the First Presbyterian Church of Nashville, is on the prevention of cancer—we are after that fell destroyer of mankind now.

If that kind of work, my friends, does not deserve a monument I would like to know what kind of citizenship buys a monument. What is it for? But, thank God, the profession of medicine does not want that kind of monument. The monument that they love most is, "Well done, thou good and faithful servant!" That is what they work for, and that is what they have stood for from time immemorial.

My friends, I remember once standing at the tomb of Napoleon in France, and I thought, "My, my, what a grand sarcophagus to a man of restless spirit, a man who deluged the world with blood, a man who devastated Europe in his restless, warlike ambitions." And then I thought, "His object was to take life; the medical profession's object, as it has followed down through all the ages, has been to conserve life, to prevent as much as possible the ravages of disease, to alleviate human suffering and prolong human life." My friends, can you imagine a broader, a grander, a more God-given vocation for man to practice?

In your own field here you occupy a very unique and a very honorable position in the medical profession. The St. Louis medical profession is known all over the United States as a body of men who have done well, who have always met any obligation thrown upon them. You have a university here that is hoary with age. I read here that you have eight men, almost every one of them over seventy-five years of age, who have come down through these years, watching the growth and prosperity of this great Society. Gentlemen, it is an honor to be sitting at the same table with such men. Did you ever think what their long lives mean? Did you ever think how many times they have experienced that thrill of bright happiness when they turn to some weeping mother and say, "Your baby will live." Did you ever think how many times those men have gone, on the darkest night and the rainiest day, plodding through the avenues of this city, or through the country roads, to serve, regardless of dollars, regardless of cents? Did you ever think what their real monuments are? Gentlemen, if I had to build a monument to the medical profession, notwithstanding the great men that we have, notwithstanding the great Gorgas, who absolutely made possible the building of the Panama Canal, notwithstanding those great men who absolutely stopped forever yellow fever, notwithstanding all these, I would build it to the country doctor that rides the old gray horse, with his saddle bags flopping behind! (Applause.) And I would say, "Here is the real hero; the night never grows too dark, nor the weather too cold for him to go into the service, that real service, that altruistic service that makes life worth while!"

My friends, I have lived a rather long time myself—not as long as some of your members, but a long time, and I want to say to you that there are two lessons which you younger men should learn.

*Address before the St. Louis Medical Society's Get-Together Dinner, Armistice Day, November 11, 1922.

The first is that it is more blessed to give than to receive; the second is that if you are organized and start in with your brothers, with the good fellowship of brothers, there is absolutely nothing can keep you from the realization of your hopes. It will come, I assure you it will come, with your society organized. I have never feared, my friends, any move that was made by the medical profession, when it had for its object what its usual object is, the upbuilding and the best interests of the public.

After all, they are the people that have a right to inquire into what we are doing; they are the people we serve; they have a perfect right to know why we are serving, and how we are serving.

There are a great many things that are unfortunate in our country at the present time. We are advancing medical education to a point where, I am sorry to say, the rural districts are in need of doctors. I am sorry to say there are a great many of those conditions, and they are conditions which we should and must find some way to prevent. Those people are the bone and sinew of this country. They have to have doctors, and they should have just as good doctors as any people in the world. Now, how are we going to meet that? My friends, that is one of the problems of the age, in my honest opinion. It will only be met when the great medical profession organizes to a man. Whenever they go down the line as a unit, there will be no such thing as threatening legislation, but such legislation is bound to come unless something is done. Those people feel outraged in many respects, and they lay it at the door of some possibly unwise decision on our part. But I want to say to you, let the profession organize, and meet this thing, face it, let them know that it is the intention of the medical profession to see to it that they not only get doctors, but get as good doctors as anybody else. When you do that, you will have fulfilled a mission and a duty which you owe to the public and which we must meet. Is the system of medical education responsible? It has been said that our methods of teaching have rendered men unfit for practice in the rural districts, and I am afraid that there may be something in that charge. I am afraid that possibly many of our young men have come to believe that they cannot practice outside of a hospital, under the shadows of a laboratory, within the walls of a test tube. How I long for the good old days, sometimes, when a man could look at the tongue, feel the pulse, give a grunt, and tell what was the matter with people! (Applause.) While those good old days may have been somewhat deficient, my friends, and while the time may have come when the good old family physician does not occupy the place he had years ago, he served his people well.

Today the public, the business men of this country are realizing as never before that after all it depends on the hygienic conditions and the sanitary conditions of the country, whether their business will prosper, and that the future of the world is upon the doctor's shoulders. And just such work as he and his good fellows are doing is being backed up by you and by me and by every other man that loves his fellow-man and wants to meet the obligation to our country.

You cannot do it unless you organize. Every great business that ever prospered was organized. Every great improvement, every great war, everything that has ever happened in the world that was worthwhile has been made possible by unity of action. If that is accomplished, what cannot we do as a profession, with all of the altruistic ideals of our own country, with a spirit that is grand and noble in our professional calling? With that divine in-

stinct that follows down from the great Messiah himself, what have we not a right to attain? If we organize and enter into the spirit of a great and useful career, who can say us nay? Who can withstand the onslaught of organized manhood and womanhood that starts out to try and save the world?

My friends, did you ever think what that means? It carries with it a God-given blessing before you start. It gives you a power that no other organization in the world can have. It gives you a position for service, which, after all, is in my opinion one of the grandest words in the English language. It gives you a basis for the development of your own country, for the development of your own society, and for the development of the usefulness of our citizenship, that no other organization in the world can have, not one.

In your great task here, you have started out to build yourselves a home. Why, gentlemen, you have a library here, I am told, that is invaluable; you cannot replace it. Are you going to let the fell destroyer, fire, ruin those precious volumes that mean more to you than all the other possessions you have? See to it that you place something around those books and those volumes that means safety for the future generations. Can you not now enter into that spirit of broad fellowship that is so necessary? Smallness, gentlemen, has no place in the medical profession. There is no place for a little man in the medical profession. If he is afraid that Doctor A is going to say something bad about him, and he is going to tell Mrs. So and So that Doctor B does not know what he is talking about, God pity him! God pity him! Let Doctor A say it; he has only hurt himself, he has not hurt Doctor B. Pay no attention to those petty little jealousies, my friends. And one of the saddest things in the world is when medical schools fight each other. You know, in the old days they used to ask you, "Will you meet Dr. So and So? He is from another school than you are." That time, gentlemen, is past. It sprang up after the Civil War, when there were a great many men who felt that to achieve distinction they had to organize a new school. They had a way of sending them to the "Fessor," you understand. But, thank God, that is gone now, and if the man calls another Professor now, they shoot him on the spot! (Applause.) It is not done.

But why have those times gone, gentlemen? Why have they gone? They have gone because of the great organization of the American Medical Association, the great organized method wielder of our profession in the United States. And why is it great? Simply because your state society is the initial unit, your medical society is the second, and your individual is the absolute starting point. Now, that makes the greatness of it. It is no greater than the one man who starts it in his individual capacity. You have started a great work here, and you are going to put it over; I have no more doubt of that than of the fact that I am standing here in this room. One of the unhappy things about my not being here for the end of these talks is that I did hope that I could stay long enough to see this crowd rise up with that spirit that I know is born within you all, and say what our grand old Andrew Jackson said, "By the Eternal, it will and it shall be done!" (Applause.) Whenever you do that, you will go through. That is the spirit, my fellows, and that is what will put it over. You are building not only for yourselves, my friends, but you are building for the future. You are making it possible for your boy and mine to live to see the day that he will say his fathers were wise enough and had far-sightedness enough to lay down a monument for future generations, that the world might realize that

the doctor honored himself, and just as he honors himself, just so will the world honor him, coming to the realization that he has this great position; that he stands unique in his usefulness; that he stands as the guardian of all people, rich and poor alike. And it will fully realize what that means; that it means the grandest and the most noble calling within the gift of God. I sometimes think that the great Messiah took the position of physician because He realized that in the tender ministrations that He had to give, that sometimes it was worth as much to tend the body as the spirit. I sometimes feel that many times we do not follow in His tracks as we should. I want to say that if we follow in His tracks, with those instincts of the physician that have been handed down through all ages, from the priesthood doctor on down, we have inherited a wonderful inheritance. It has been handed down to us, and we hope that the doctors of this century will never sully that flag, and that they will never live to see the day that it is tarnished by any objectionable things.

I believe we are responsible, my friends, for many of the cults and follies that are being practiced today, because we have not organized as well as we should. When the world realizes what they really are, they will be discarded. And they will do it by just such organizations as you have here, showing them the right way. Whenever the world realizes what you mean to them, you will find that these things will go, like all the rest of the methods of the past, they will pass like a "will o' the wisp," and the grand old state of medicine will go on and on, doing good to the world, until it confers a blessing on mankind wherever the sun shines! (Applause.)—*Bulletin St. Louis Medical Society.*

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL, FOR 1923

(UNDER THIS HEAD WE LIST THE SOCIETIES WHICH HAVE PAID THE STATE ASSESSMENT FOR ALL THEIR MEMBERS)

Chariton County Medical Society, December 31, 1922.

Webster County Medical Society, January 6, 1923.

Madison County Medical Society, January 15, 1923.

Cape Girardeau Medical Society, January 23, 1923.

Camden County Medical Society, February 1, 1923.

Clark County Medical Society, March 5, 1923.

Perry County Medical Society, March 27, 1923.

PROCEEDINGS OF THE WASHINGTON UNIVERSITY MEDICAL SOCIETY

Ninety-Fourth Meeting, February 5, 1923

1. MEDICAL PROBLEMS IN THE NEAR EAST.—By DR. PAUL HARRISON.

PROCEEDINGS OF THE WASHINGTON UNIVERSITY MEDICAL SOCIETY

Ninety-Fifth Meeting, March 12, 1923

1. PRESENTATION OF CASES.

- A. THREE CASES OF SPINAL SYPHILIS.—By DR. L. D. CADY.

2. THE EXPERIMENTAL PRODUCTION OF MALIGNANT ULCERS IN THE RAT.—By DR. MONTROSE T. BURROWS.

Through a careful analysis of growth in the organism I have found that it is a function of the rate of metabolism of all tissues of the body. The metabolism of the cells of the body is an incomplete chemical reaction which comes to an equilibrium with the accumulation of a substance which is insoluble in circulating body fluids. This substance is an active blood coagulant and probably a phospholipin. The muscle cells differ from the simple mesenchyme in that they have a mechanical organization capable of metabolizing this substance into a soluble form. For metabolism to take place in the connective tissue or skin epithelium this substance must be otherwise removed. The heart and other organs may grow as the result of excessive stimulation. The connective tissue cells grow only through the addition of fibrinogen or other absorbent which removes this substance. This substance changes fibrinogen to fibrin which Hertzler shows forms the basic proteins of the scar. The wound heals by the stimulus of the exudate. The activity of the cell ceases by the accumulation of this substance about them in the formation of the scar.

This substance is soluble in coal tar products. The stimulating effects of lipid solvents in the body, therefore, becomes evident. Anything which removes this substance must occasion a continuous metabolic activity in the cells. The cells under the influence of a certain acceleration of their metabolism grow. Greater stimulation leads to their dissolution.

While this explains the primary degeneration of cells and secondary growth which follows the introduction of coal tar into the tissues (Jorstad) it does not explain the transplantable cancers. It became then of interest to see if they contained a stimulating substance. In previous observation I noted that the metabolism of the mesenchyme-cells of chick-embryos under 9 days old is regulated by conditions somewhat different than those of older embryos. Fragments of these tissues liberate a soap-like substance which diffuses readily over surfaces of isotonic salt solution, plasmatic clots and tissues. The cells move and grow actively in this film. No such substances are liberated by normal fragments of tissue of older embryos or adults but these films have been seen about fragments of malignant carcinomata of the bladder and prostate (Burrows, Burns and Suzuki) and about the fragments of several malignant transplantable carcinomata and sarcomata of animals. It is evident that this change in the metabolism is important in allowing the embryonic cells and tumor cells to grow within and invade the body. The difference between these tissues, the embryonic on the one hand and the tumor on the other is that the growth of the first finally ceases in the body while that of the latter is continuous. Does this mean that the latter contain some self-propagating veins which bring about these changes or is it due to other peculiarities in the structure of these cells?

Rous has shown that a sarcoma of chickens may be transmitted by a Berkefeld filtrate of the tumor. No such exciting agent has been extracted from the transplantable animal tumors. Wondering whether

this might not be due to the fact that the adult rat cells under normal conditions are resistant I tried the effect of Berkefeld and paper filtrates of malignant tumors on minced embryonic tissue of rats injected into a host rat. The tissue of embryo-rats 13 to 17 days old grows rapidly to form large benign embryomata. The rate of growth is greatest per unit weight of tissue injected in the tissue of the 13-day-old embryos. This ability of the tissue to grow ceases abruptly after 17 days. Minced embryonic tissue ranging from 13 to 16 days old was treated with a Berkefeld filtrate and injected. Out of 150 injections two malignant sarcomata developed. The filtrate was prepared from a sarcoma of the rat. The sarcomata developing in the embryonic tissue resembled the parent tumor. No malignant tumors developed in 200 rats injected with the filtrates or in 150 rats injected with the embryonic tissue alone.

In another experiment I produced indolent atrophic ulcers in the skin of rats. Two developed in the skin of a rat whose surrounding tissue had been injected four months previous with the Berkefeld filtrate of the same sarcoma of rats. Eight ulcers developed in the control animals. The control ulcers remained simple indolent ulcers while the two developing in the animal receiving the filtrate were typical carcinoma developing from the sweat glands. The filtrate used was from a sarcoma.

While these experiments are too few to indicate clearly the mechanism active in such tumor production it is interesting to note further here that these filtrates stimulate the embryonic tissues. They destroy the younger embryonic cells and increase the growth of the older less actively growing ones. The two sarcomata developed only in the smaller number of experiments where 15 and 16-day-old embryos were used. These filtrates act on the younger embryonic tissues like Woglom and Russell showed that embryonic tissue inhibits the growth of transplanted tumor fragments. These authors considered this inhibition in the light of a resistance or immune reaction. Our more quantitative experiments have indicated, however, that this is probably not true. The growth of the younger and more actively growing tissues is inhibited while that of the older more slowly growing tissues is stimulated. The carcinoma developed in an indolent ulcer of the skin of the adult host. The decreased activity in the cells of the younger embryos treated with filtrate of the tumor we feel is a dissolution resulting from over stimulation rather than the effect of any immune body.

DISCUSSION

Dr. Leo Loeb: Dr. Burrow's paper is very interesting. However, there are certain objections which occurred to me in regard to the interpretation suggested by Dr. Burrows. In the first place, he found that after the injection of embryonic rat tissue into rats, the embryonic tissue not only developed into cysts and benign teratomata, but that in two cases sarcoma developed. In his experiments the embryonic material had previous to inoculation been immersed in Berkefeld filtrate of rat sarcoma. Dr. Burrows is inclined to attribute to this fact the sarcomatous transformation which he observed in two cases. I am not certain that this is the only possible interpretation. In this connection I particularly recall the investigations of Askanasy, who, in a long series of experiments, produced embryomata in the rat and observed a malignant transformation in two of these embryomata. In one case a carcinoma and in the other a sarcoma developed. Askanasy obtained these results without the use of sarcoma filtrate.

The second fact that Dr. Burrows mentioned concerned the production of a malignant ulcer in the rat. In this case epithelial structures became can-

cerous in contact with the underlying embryoma, again after the same kind of filtrate had previously been applied, if I understand Dr. Burrows correctly. In this connection I could recall an analogous case that I observed more than 10 years ago. I inoculated a mouse with mammary carcinoma and a carcinomatous nodule penetrated to the skin and caused the formation of an ulcer. At the place where the ulcer developed the epithelial tissue adjoining the ulcer began to grow down and form a carcinoma evidently in contact with the inoculated adenocarcinomatous tissue of the mammary gland. Later Lewin observed a similar case in the rat. It is probable that growing tissue in contact with ulcerating or even nonulcerating surfaces may induce the adjoining epithelium or connective tissue to become cancerous. The observation of Dr. Burrows that even growing embryonic tissue can produce such a transformation, is very interesting.

As far as the theoretical considerations of Dr. Burrows are concerned, I must confess that I could not entirely follow them. I hope to understand them better when I read his paper. In this connection I might, however, mention one point and this concerns the effect of tissue-stereotropism to which Dr. Burrows seems to attribute great theoretical significance for tissue growth. In 1897 I observed that tissue cells migrate only in contact with solid bodies and I called this reaction stereotropism of tissues. Later I observed that while contact with solid or semi-solid bodies is necessary for the migration of tissue cells, it is not necessary as far as the mitotic-division of cells is concerned. Even if suspended in fluid the cells can divide actively in the test tube, provided they are supplied with the necessary amount of oxygen and are otherwise kept under favorable conditions. Therefore stereotropism can be only of secondary and indirect importance in tissue proliferation.

I appreciate Dr. Burrows' work and I trust he will in his further experiments bring new evidence in favor of his interpretation as to the importance of the Berkefeld filtrate. Although I have obtained only negative results after the injection of Berkefeld filtrate of rat sarcoma, I should be glad to be convinced by evidence obtained by the use of different methods, such as those employed by Dr. Burrows.

Dr. E. A. Graham: It has been very interesting to follow these experiments of Dr. Burrows over a period of two years. Frequently I found myself lost in the maze of difficulties simply because of my own lack of familiarity with the subject. Because of that fact, however, I think that perhaps many here tonight who have heard this for the first time, are confused, and I would like to ask Dr. Burrows if he will not summarize briefly again just what the differences were in the methods of production of the malignant ulcers and the other tumors. Dr. Burrows is so full of his subject that I am sure he fails to realize that we are not equally as full, and so failed to make the distinction entirely clear, that he was not merely dealing with embryonic tissue but with embryonic tissue of a certain age.

Dr. M. T. Burrows: I do not believe our work has been carried far enough to give a definite explanation. The interesting facts are that as far as growth in the cultures is concerned there is a very definite relation between metabolism of the embryonic cells under nine days of age and that of malignant tumors. In the work on the animals I find that the filtrates of a sarcoma inhibit the younger actively growing tissues and stimulate the growth of the older embryonic tissues. Among the experiments of older embryonic tissue two sarcomata have developed where the filtrate was used. At first I thought these the result of an accidental inoculation of tumor cells but the evidence of stimulation spoke

against this view. In another series of experiments I tried the effect of the filtrates on a tissue which fails to grow, an indolent ulcer. I find these may be produced in the skin of older embryos into the skin. Filtrate was added to a rat which developed two such ulcers. These become carcinomatous. The filtrate was from a sarcoma. Eight control ulcers have remained simple ulcers.

3. INTRACARDIAC SURGERY.—By DR. DUFF S. ALLEN and DR. EVARTS A. GRAHAM.

This experimental work was to develop a practical surgical procedure for the relief of mitral stenosis in the human heart. From the beginning we believed that such an operation inside the human heart must be carried on under direct vision. We cannot see through opaque blood, nor could we have time enough allowed to clamp off the vessels going to the heart, open the heart and cut the valve under direct vision. We, therefore, were obliged to devise a method for operating on the inside of the heart in the presence of blood.

We noticed, when a heart was immersed in a bloody fluid contained in a clear glass jar, that wherever the heart came in contact with the glass jar the details of the outside of the heart could be seen very distinctly even though the heart was in an opaque bloody medium. This gave rise to the idea that if we could get a piece of glass against the inside of the heart, we could see the inside of the heart while the circulation was taking place through it. The result has been the development of the cardioscope which permits the carrying out of surgical procedures on the valves without interruption of circulation and under guidance of the eye. We have repeatedly looked into the hearts of normal etherized dogs for as long as 20 minutes.

The route of approach to the mitral valves through the heart wall is of importance. The best route found has been through the left auricular appendage. This is clamped off at its base, the tip opened, the cardioscope inserted and tied in place with a purse string suture. This prevents hemorrhage and allows the operation to be done without undue haste. We have had no mortality due to manipulation of the heart while inserting the cardioscope through the left auricular appendage.

During the operation for cutting the mitral valve in our experiments, the blood pressure in the femoral artery is found to maintain its normal level up to the point of the exploration of the atrium; then there occurs a slight fall during the period when the instrument is within the cavity of the atrium, but the pressure immediately rises when the instrument is withdrawn into the appendage. If one wishes, therefore, to have the blood pressure rise to normal during the operation, one has only to withdraw the cardioscope into the auricular appendage.

Electrocardiographic studies show that the conduction time through the auricle and through the ventricle are unchanged by the operation. The ventricle follows the auricle in the normal sequence. We have followed our experiments for as long as eleven months after cutting the mitral valve.

For the last eighteen months we have been trying to produce a mitral stenosis. We tried to sew the edges of the valves together to traumatize the edges with a view of infecting them later and causing them to grow together. We did not succeed. Some months since we began to tie a ligature around the chordae tendinae at the point of their attachment to the edge of the valve, and by this simple mechanical procedure to produce a stenosis. We have succeeded in producing a stenosis sufficient to give, first, an engorgement of the auricle, then an auricular flutter followed by auricular fibrillation. Dyspnea was noted during the experiment. This stenosis

is, mechanically, a real stenosis of the mitral valve.

Our experiments up to the present show that in the normal hearts of dogs we can cut the valves with impunity; that following operation a surprisingly small number of changes is noticed in the heart; and that we can do the operation under direct vision with leisure. We have found that the valves do not grow together after being cut; that there is no great danger of post-operative thrombus formation inside the heart; and that the wound in the wall of the auricle has always healed. We feel, therefore, that the procedure would be a reasonably safe one to be carried out upon the human.

DISCUSSION

Dr. E. A. Graham: Everybody knows that thoracic surgery is one of the oldest types of surgery, and also the newest. Certainly we find proofs of thoracic surgery in the writings of Homer, and perhaps in even earlier days. The methods practiced in thoracic surgery by the ancients had come down practically unchanged almost to the present time; and up to a very few years ago our thoracic surgery was much the same as that done by the ancient Greeks. Although the heart has been operated on successfully for purposes of suturing wounds in about 150 instances, there is only one instance of an attempt being made to operate on the human heart for anything else but for repair of a wound until Tuffier attempted to dilate a mitral stenosis. Tuffier in about 1902 had a young physician come to him, suffering from mitral stenosis and in such a miserable condition that he preferred to take any risk rather than go on as he was. Tuffier decided that the mitral stenosis would have to be dilated. This had never been done before. He opened the left ventricle with his finger and stretched the valve, thus dilating the stenosis. Tuffier was the first to perform such an operation. The patient continued to improve over a period of years. Some years later, Tuffier showed him before the French Surgical Congress. I asked Tuffier about this patient two years ago in Paris. He was still alive but having some disturbance again from stenosis. Tuffier thought, however, that if he had not dilated the stenosis with his finger the man would then have been dead. It seemed to me to be an exceedingly stimulating experience and one that would give encouragement to go ahead and devise a better method that would be safe, one that would make it a feasible process. To Dr. Allen belongs the credit for the beautiful and ingenious demonstration which we have seen tonight. It is a masterpiece of dexterity and ingenuity. It is certainly a better method with greater possibilities than any previous one, and it is far superior to Tuffier's finger method or the procedure of Carrel and Tuffier which necessitated clamping off of the heart and vessels for a few minutes. We shall now be encouraged to try the operative procedure on a human patient after familiarizing ourselves more with the particular operative difficulties presented in the human case. There will probably be a high mortality, at least at first. We do not want to rush into this thing with false hopes, for it is quite possible that it will have to be abandoned, but as we all know, the only way to know its feasibility is to try. I wish to mention in this connection that any new operative procedure carries a high operative mortality. In 1905 an analysis of statistics was made by Matli of the operative mortality in the German and Austrian clinics on cases of resection of the stomach for carcinoma, and it was found to vary between the appalling figures of 45 and 80 per cent.

Any new operative procedure is likely to carry a high mortality and it will not be surprising, therefore, if this operation will at first carry a high mor-

tality. I mention this point, in concluding my remarks on the subject, merely to avoid a too optimistic state of mind.

Dr. W. C. G. Kirchner: I should like to present an operative aspect on Dr. Allen's experiments. I have had experience in seeing operations on five human hearts and in two instances performed the operation myself, one of the cases making a complete recovery. Three of the five cases survived the operation. My experience in cardiac surgery demonstrated to me the feasibility of the operation that Dr. Allen has demonstrated this evening. I have always had experiments of this type in mind, and so convinced am I of the success of this operation that I believe it will in the very near future be attempted. There are certain technical points in cardiac surgery which, when considered with the results of these experiments, will have to be worked out and which will make this operation more feasible. There is undoubtedly a great deal to be said in favor of this type of operation which will certainly prove most helpful in selected cases as has been demonstrated in the experiments tonight. In one of my cases the heart stopped beating entirely when the pericardium was opened, but upon suturing the wound in the heart and massaging the heart resuscitation was brought about and the apparently dead man was brought back to life. So these experiences which will be multiplied as the operations on the heart become more frequent will lead to methods of safe procedures in cardiac surgery. I wish to conclude my remarks by congratulating Dr. Allen upon the results of his most interesting experiments.

4. EXPERIMENTAL STUDY OF THE SIMULTANEOUS LIGATION OF THE PRIMARY ARTERY AND VEIN OF AN EXTREMITY.—By DR. BARNEY BROOKS and DR. KIRBY A. MARTIN.

This experimental work was undertaken because of Sir G. H. Makins' unusual assertion, as to his clinical results on simultaneous ligation of the primary artery and vein of an extremity, made from his observations during the Boer War on injury to blood-vessels. To our knowledge no experimental work has been done to verify this idea.

1. Dogs and rabbits were used. By following the temperature readings of the tissues of the extremities, other things being equal, a change in temperature in one leg would indicate a change in volume flow through that extremity. Temperature readings were taken after ligation of artery, vein, and artery and vein. *Results:* After ligation of primary arterial channel, there was a decreased flow through the extremity. If the vein was ligated, the artery being intact, the flow was decreased but to a less extent. If artery and vein were ligated simultaneously, the flow was decreased to greater extent than from either of the above.

2. Blood pressure determinations were made on the normal artery and vein and then on the artery and vein distal to the ligature with and without the accompanying vessel being ligated. *Results:* Blood pressure fell distal to the ligature in the artery; the venous pressure fell slightly; then on ligation of vein, pressure rose in both artery and vein distal to the ligatures; the venous pressure increased relatively greater and proximate that of the arterial pressure.

3. Several series of experiments were done to determine the percentage of gangrene resulting from ligation of artery alone and from simultaneous ligation of both artery and vein. Percentage of gangrene resulting from ligation of the primary artery alone was about 38 per cent. greater than from ligation of both primary artery and vein. The probable

explanation is that the nutrition is improved by the increased intravascular pressure resulting from the ligation of the vein.

DISCUSSION

Dr. E. A. Graham: I would like to ask Dr. Brooks to go into an explanation of this phenomenon a little more.

Dr. Barney Brooks: It is a rather interesting fact that approximately at this time last year we reported some experiments which showed some disastrous effects of the venous occlusion on an extremity, and now we are pointing out beneficial effects of venous ligation. We are speaking of different degrees of venous occlusion. When the venous obstruction is complete, it leads to disastrous results. In these experiments the venous obstruction was not complete. These experiments show two things distinctly: In the first place, if the primary artery is ligated, the blood flow through the extremity is decreased, and with a simultaneous ligation of the accompanying vein, the flow is further decreased. When the artery is ligated there is a fall in the temperature of that extremity which is progressively more distinct in its distal end. If the vein is ligated, there is a further fall in the temperature all along the extremity. The other point is that following the ligation of the artery there is a marked fall in the blood pressure distal to that ligature. If the vein is then ligated the pressure rises but to a less extent than the venous pressure. In other words, there is much less difference between the arterial and venous side after the vein is ligated than before, which would result in less volume flow. There is a lessening of the blood flowing from the extremities. At first we thought that probably this was due to the fact that after the arteries were ligated, the blood ran back without reaching the foot, and by blocking the vein we would force the blood to pass through the distal capillaries. That is not true. If it were true the temperature in the distal end of the extremity would certainly not fall with the occlusion of the vein. The only change which we were able to make out definitely in the circulation distal to these ligatures, was an increase in the intravascular tension. What that has to do with nutrition is not perfectly clear in my mind. Of one thing I am sure, and that is the increase in intravascular tension. After several investigations on venous occlusion of loops of intestines we have shown that lymph flow was increased, and it is not unlikely that there is required a certain degree of pressure within the capillaries in order to carry on the nutrition. A word about the importance of this work: It is important in all operations on arteries in case of wounds, and in operations of aneurysm. I am perfectly convinced that the actual incidence of gangrene is decreased by this venous occlusion. There is another large group of cases, and that is gangrene which develops from endarteritis, arteriosclerosis, or various forms of intravascular disturbances (lesions). What is the effect of occlusion of the vein in such diseases we do not know. That is a problem for investigation. There is, however, one particular group of cases which we would like to call attention to, and that is a certain number of gangrene cases which are due to very sharply localized arterial diseases. For instance, we examined a specimen a short time ago in which the popliteal, anterior and posterior tibial arteries showed a complete occlusion below the peroneal orifice. The peroneal artery was perfectly intact. The entire circulation of that extremity came through the peroneal artery and into the anterior tibial by a small connecting branch. I wish to call particular attention to the fact that the whole problem of circulation in that extremity was bound up in that particular branch. Gangrene might have been prevented had the vein been occluded.

5. A FUNDAMENTAL FACTOR IN THE RECURRENCE OF INGUINAL HER-NIA.—By DR. MAJOR G. SEELIG and DR. K. S. CHOUKE.

The modern operation for the cure of inguinal hernia is based on three fundamental considerations: 1. Aseptic wound healing. 2. High ligation of the hernial sac. 3. Adequate restoration of the weak abdominal wall.

The percentage of post-operative recurrences is higher than would be imagined, off-hand. The essayists attempted in their studies to determine whether inadequate restoration of the abdominal wall was a factor in this high rate of recurrence. From clinical experience, they were led to believe that the commonly accepted method of suturing Poupart's ligament to the internal oblique and transversalis muscle is a futile procedure. In practically all operations on recurrent hernia they had found that these structures did not remain fused after having been sutured.

In order to check up this point, they sutured muscle to fascia in various ways, and they invariably found that when the wounds healed primarily, they failed to secure direct union between the sutured muscle and fascia. If the muscle were deliberately traumatized, or if severe infection occurred, a cicatricial union occurred, but usually this was a weak union.

Studies were made of those sites in the body where nature fuses muscle and connective tissue, and it was found that a special mechanism exists. Surgery cannot easily imitate this mechanism.

When fascia was sewed to fascia a firm apposition always resulted.

The essayists recommend giving up the suture of muscle to Poupart's and substituting some of the types of closure that suture fascia to fascia.

Dr. E. A. Graham: I would like to know what Dr. Seelig would have to say about Galley's living sutures made from strips of fascia lata. Do you think they would form a firm buttress and thus prevent recurrence?

Dr. V. P. Blair: If we are going to discuss the Galley live tendon suture I think we should have an understanding as to just what the term means. The idea of using live connective tissue strands for suture or stays is very old. About 15 years ago I published some work in connection with the use of live fascia for supporting the kidney and found that I had been antedated by several men on the same work. In all of this work the fascia was drawn through the muscle in the hope that sufficient union would take place between the muscle connective tissue and the fascial strand—for there is no evidence from experimental work that muscle fibre and connective tissue fibre enter into union.

Galley takes advantage of the fact that a real physiologic union cannot be produced between two pieces of live connective tissue. He sutures together, end on end, narrow strips of fascia lata until he produces a piece several feet long. In its application this may be compared to a shoe lace—the friction at the eyelets corresponds to the rather weak connective tissue attachment which the fascial strand establishes in its passage through the muscle, but the greater part of its holding power depends upon the fact that the two ends of the lace are fastened together. Because it is a piece of live tissue it does not tend to cut through or cause absorption of the muscle.

BOOK REVIEWS

A TEXT-BOOK OF HUMAN PHYSIOLOGY. Including a Section on Physiologic Apparatus. By Albert P. Brubaker, A.M., M.D., LL.D., Professor of Physiology and Medical Jurisprudence in the Jefferson Medical College, etc. Seventh Edition. Revised and enlarged with 367 illustrations. Philadelphia: P. Blakiston's Son & Co., 1012 Walnut Street, 1922.

A book must be judged to some extent in accordance with the object of that particular work. For example, a text-book on physiology addressed to junior medical students would be written in a different language and cover different topics than would such a text-book addressed to practitioners for their reference work. In his preface, Professor Brubaker says that his book is intended to reach students of medicine during their attendance on lectures and of practitioners who may desire to refresh their memories of well-established facts on physiology and inform themselves of newer facts which have a bearing on the problems of clinical medicine. The book seems to meet more nearly the needs of the first than those of the second type.

We note in the chapter on Internal Secretions that there is no discussion of the thymus or of other glands than thyroid, adrenal and pituitary. The spleen is also treated rather cursorily. And yet the clinician of today needs very detailed information on the other structures sometimes called glands, and also on the spleen.

In the section on the nervous system we find the definition of the autonomic nervous system and its description so succinct that it does not help us to evaluate the newer reports and studies on the internal secretions and their control. It seems, therefore, intended for those who simply wish a general notion of the action of the sympathetic as opposed to the spinal nervous system.

The language, too, in which such a book is expressed must be selected with reference to one or the other class. If the work is planned for the student entering upon the study of medicine, the language has to be largely couched in lay terms and written in a way that will interest and be intelligible to such a circle, untrained in medical terminology or in thinking along clinical lines. For the practitioner, on the other hand, the book to be of value should take up matters from the clinical standpoint, from the case history standpoint, if you please, and in that way try to keep the fundamentals of physiology in close touch with clinical experience. This book is couched in terms that are at once succinct and accurate but which lack something of the broad, appealing interest that is needed for a layman. On the other hand, one finds little of the discursive that would appeal naturally to the practitioner who is trying to secure the latest corollaries to the various axioms that he learned in his student life.

For this reason, we think the book best fitted for a text-book for students who have had some training in scientific thinking and who are looking to their text-books for careful, brief, definite statements that they can use in preparing for examinations and the other tests of their medical career.

G. H. H.

MEDICAL DIAGNOSIS for the Student and Practitioner. By Charles Lyman Green, M.D. Fifth Edition, Revised and Enlarged; with 14 Colored Plates and 623 Other Illustrations. Philadelphia: P. Blakiston's Son & Company, 1012 Walnut St. 1922.

This book has grown from a small leather-bound handbook for students to this bulky volume which is probably as complete a textbook on diagnosis as is

written in our language. We congratulate the author and publishers on the appearance of the volume, the arrangement of the text, and for their adding marginal headings which enable one to find quickly the important points.

As far as your reviewer has seen, there is nothing of importance left out of the work. And, on the other hand, the discussion, while necessarily brief, is quite adequate for this type of book. The fact, however, that the author has managed to cover both laboratory diagnosis and clinical diagnosis makes the book of great value to the practitioner as a book of reference in his consulting room. Your reviewer has only words of praise for the book. G. H. H.

WHEN WINTER COMES TO MAIN STREET. By Grant Overton. George H. Doran Co., New York.

The title of this exceedingly interesting volume, by the editor-in-chief of the publishing house of George H. Doran, has nothing to do with the contents of the book. It was suggested by two of the best sellers of recent years, "If Winter Comes," by Hutchinson, and "Main Street," by Lewis Sinclair, and is intended for nothing more serious than that of flagging the attention. We venture, however, that it is the real purpose back of every title, be it bibliographical or human.

Overton's book is a sort of literary or biographical symposium, if we may so designate it, of the writers whose productions during the year ending with the autumn of 1922 bear the Doran imprint. A chapter each, with a list of works, is devoted to Hugh Walpole, Rebecca West, Mary Roberts Rinehart, Arnold Bennett, Irwin Cobb, Robert Chambers, and others.

It is always interesting to hear about the folks we admire, and the book before us discusses the problems of a host of our contemporary literati, relating in breezy fashion many stories of their every-day lives calculated to make us better acquainted with them.

The author has had recourse to many sources from which to glean his information concerning the subjects in his volume, and he brings out many points of interest affecting them in much the same fashion as the spotlight by its scrutiny reveals to us the performer on the stage.

For instance, we feel like congratulating Arnold Bennett when we learn that out of the excess of the profits of his first novel, written at the age of 31, he bought—a new hat. The early life of Hugh Walpole throws much light on his characteristics as revealed in his novels, and Overton tells us things about Stewart Edward White that coincide with our estimate of that worthy author's character. Robert Chambers and Charles Dana Gibson, at the beginning of their careers, sent contributions to *Life* at about the same time. Gibson offered a piece of writing, while Chambers sent a painting. Would it surprise you to know that Gibson's writing was accepted while Chambers's painting was not? Last but not least we must say a word about Mary Roberts Rinehart, whose popularity we have long conceded. Physicians have recognized the orthodoxy of her pen in her handling of hospital scenes in "K" and "The Amazing Adventures of Letitia Carberry," so it will not occasion any great surprise to learn that she began her public career as a trained nurse and is the wife of a prominent physician. In her books the situations are always sane and natural, her plots never impossible. Her stories carry us with her so naturally that we enter into their spirit smoothly as we read.

THE BREAKING POINT. By Mary Roberts Rinehart. George H. Doran Co., New York. \$2.00.

Nothing is more restful than a good story, and few stories are as good and as restful as those that emanate from the pen of Mrs. Rinehart.

If there is one kind of story that makes a special appeal to the physician it is a good medical novel. It affords the doctor the novel experience of being a spectator in his own shop. To be occasionally relieved of the responsibility of being a *dramatis persona* is a relief, and this is doubly true when the tale is handled in such a way that the physician can feel that he is in good company.

Mrs. Rinehart, who, in her earlier adult years, was a trained nurse, and later married a physician, weaves an absorbing story around a case of protracted amnesia.

Doctor Richard Livingstone is a young and successful practitioner in a small town. He is generally accepted as the nephew of old Doctor David Livingstone, with whom he lives. Suddenly a stranger starts a rumor. It grows rapidly until its suspicions reach the ears of the young doctor. The gossip has to do with menacing speculations concerning his past history—a history which to the young doctor's mind is non-existent. Because of his fiancee he feels he is bound to find out who he is and who he was. What happens constitutes a story that will cause the reader to burn the midnight electric light. "Dr. David" is a lovable character and a splendid representation of the conscientious, self-sacrificing physician.

THE SUCCESSFUL PHYSICIAN. By Verlin C. Thomas, M.D. Visiting Physician to Franklin Hospital, San Francisco. Octavo of 303 pages. Philadelphia and London: W. B. Saunders Company, 1923. Cloth, \$4.00.

We all like to give advice and every now and then a publisher is willing to let us write a book of advice to young physicians. When the reviewer was beginning practice, it was Keen's "The Physician Himself" that was in vogue. Before that day no doubt there were others, one for each generation.

Perhaps such a manual of professional life is essential because the young graduate feels lost in the world of practice. Yet it is rather difficult to put on paper or in a book the things that a young physician should get into his soul before he starts out in practice. Those things can be gotten best only by intimate association with successful practitioners.

In the hospitals where your reviewer attends he can almost always tell the type of school from which the interns come, by their manner, bearing and attitude toward their work. The graduates of the low grade schools are slovenly, indifferent, interested only in getting something for nothing. The graduates of the higher grade schools who have been associating with high grade men are interested in medicine, interested in their patients, and show a broad-minded attitude toward life. Your reviewer therefore doubts if the graduates of the former type can be reformed by reading any book.

But such a book as Dr. Thomas's "The Successful Physician" is worth while if it reminds the earnest-minded young man of various points to which he must give attention. And for that reason we commend this volume to those who are about to graduate in medicine.—G. H. H.

A TEXTBOOK OF THE PRACTICE OF MEDICINE. Edited by Frederick W. Price, M.D., F.R.S. (Edin.), Senior Physician to the Royal Northern Hospital, and Physician to the National Hospital for Diseases of the Heart, London, etc. Henry Frowde and Hodder & Stoughton, London. Oxford University Press, New York. 1922. Price \$10.00.

This is a condensed manual of the practice of medicine from the English standpoint. It includes nervous and mental diseases, urology, pediatrics and dermatology, thus agreeing with the reviewer's idea of what constitutes the department of internal medicine.

The largest amount of space is given to blood and

heart disease, the latter written by Dr. Price himself. The first section takes up infection, immunity and immune therapy. The second section discusses general infectious diseases and classifies them under bacterial diseases, the mycoses, the spirochetal infections, protozoan infections, and infections of doubtful or unknown etiology. The third section deals with tropical diseases of doubtful and unknown nature. The fourth section takes up diseases due to metazoan parasites, such as diseases due to trematodes and flukes, distomiasis, diseases due to cestodes, taeniasis, diseases due to nematodes, diseases due to insects, diseases due to snakes. Section five takes up diseases due to physical and chemical agents. Section six speaks of diseases due to metabolism. Section seven, diseases of the endocrine glands. Section eight, diseases of the digestive system. Section nine, diseases of the lymphatics. Section ten, diseases of the blood. Section eleven, diseases of the spleen. Section twelve, diseases of the circulatory system. Section thirteen, vasomotor neuroses. Section fourteen, diseases of the respiratory system. Section fifteen, diseases of the kidney. Section sixteen, diseases of the joints, and inflammatory diseases of the fibrous tissues and muscles. Section seventeen, diseases of the bones. Section eighteen, diseases of the skin. Section nineteen, diseases of the nervous system. Section twenty, psychological medicine.

For a one-volume book on medicine, this is an excellent work. But in its nature, it cannot be complete or detailed enough to be of service to one who is hunting out the discussion of the details of our modern problems. At its best it serves only as a reminder of things one has already learned and wishes to refresh himself upon.—G. H. H.

THE PROPAGANDA FOR REFORM IN PROPRIETARY MEDICINES, Vol. 2, 1922. Containing Reports of the Council on Pharmacy and Chemistry and contributions from the A. M. A. Chemical Laboratory and from *The Journal of the American Medical Association*. Cloth. Price, \$2.00. Pp. 603 with illustrations. Chicago: American Medical Association, 1922.

The present book is the second volume of the "Propaganda for Reform in Proprietary Medicines." The first volume ran through nine editions. The ninth edition contained (1) the most important reports of the Council on Pharmacy and Chemistry, (2) the reports of the A. M. A. Chemical Laboratory, and (3) those articles from *The Journal of the American Medical Association* which deal with the problems of proprietaryship in medicine and the furtherance of rational drug therapy. All of this material covered a period prior to 1917.

The present (second) volume contains similar material covering the period from January, 1917, to April, 1922, inclusive. Like Volume I, this volume is divided into four parts:

Reports of the Council on Pharmacy and Chemistry.—This section presents the principles and rules which govern the Council in the examination of medicaments, contains articles and reports bearing on the work of the Council as well as the most important reports of the Council from 1917 to April, 1922, inclusive.

Reports of the A. M. A. Chemical Laboratory.—This, besides presenting the aims and objects of the Association's Chemical Laboratory, also outlines some of the Laboratory's work which is of special interest to physicians.

Contributions from The Journal: Proprietary Products.—This contains articles which have appeared in *The Journal A. M. A.* on proprietary preparations and their methods of exploitation.

Contributions from The Journal: Miscellany.—In this section are articles dealing with matters of

interest to the medical profession but not coming strictly under the classification of proprietary medicinal preparations.

A comparison of the material that has appeared in Volume I of the Propaganda for Reform with that which appears in this volume will reveal the changing conditions in the proprietary medicine field. Many of the reports in the first volume brought out the fact that medicinal preparations were at that time foisted on the profession with false claims of composition; reports of this character are less conspicuous in the present volume. Many of the reports in Volume 2 deal with unwarranted therapeutic claims, especially those advanced for animal organ preparations, serums, vaccines, preparations for intravenous medication, etc. The present volume will also be found of interest in its portrayal of the changed conditions in proprietary medicines brought about by the World War.

The index in this new volume is, in effect, a bibliography, including references not only to articles in the book but also (a) to articles which appeared in Volume 1; (b) to articles on the same general subject in *The Journal of the American Medical Association*, and (c) to articles appearing in the annual reports of the Council on Pharmacy and Chemistry and of the A. M. A. Chemical Laboratory, but not printed in either volume of the Propaganda for Reform in Proprietary Medicines.

This book is not only valuable for the information it contains, but it is also interesting. It shows up the technique of the artist in the sale of proprietary medicines, tells of his skillful word-pictures that are sent to the physician as "literature." It makes clear the work of the Council on Pharmacy and Chemistry, the A. M. A. Chemical Laboratory and *The Journal of the American Medical Association* in their several capacities as servants to the medical profession and as champions of rational medicine. The book should be in every physician's library, and more than that, should be within reach for convenient reference.

PRINCIPLES AND PRACTICE OF INFANT FEEDING. By Julius H. Hess, M.D., Professor and Head of the Department of Pediatrics, University of Illinois; Chief of Pediatric Staff, Cook County Hospital, etc. Illustrated. Third Revised and Enlarged Edition. F. A. Davis Company, Philadelphia, 1922. Price \$4.00.

This book appeared four years ago and is now in its third edition, which is considerably larger and more complete than the others. New chapters dealing with nutritional diseases, especially rickets and the anemias of infancy, have been added.

The author discusses clearly the underlying principles of infant feeding and although he teaches whole milk dilutions, there is a good chapter on cream and skimmed milk mixtures.

The nutritional disturbances are described under a different terminology in this edition, the Finklestein terminology used in the former editions having been replaced by more descriptive terms. Consequently, such terms as "Disturbed Balance," "Dyspepsia," and "Decomposition," will be dropped.

The author has made use of the recent researches in infant nutrition, especially that of Marriott on anhydremia, Holt on food metabolism, and the extensive literature on rickets.

There is an appendix giving the composition of proprietary baby foods, table of weights, measurements and dentition, methods of catheter feeding and hydrotherapy.

The page devoted to the home-made ice-box, made from a grocery box, newspapers and sawdust, could well be omitted. The book can be recommended as

an up-to-date, concise presentation of the principles of infant feeding.—H. L. D.

THE PRACTICAL MEDICINE SERIES, Volume II, General Surgery. Edited by Albert J. Oschsner, M.D., F.R.M.S., LL.D., F.A.C.S. Major, M.R.C., U. S. Army. Professor of Surgery in the Medical Department of the State University of Illinois. Series 1920. Chicago: The Year Book Publishers. 620 pages. Price of this volume \$2.50. Price of the series of eight volumes, \$12.00.

This is a review of the surgical literature for the year 1919. After giving considerable attention to local anesthesia and operative technique, the author goes on with a general discussion of and excerpts from the current literature on regional surgery. The work is a sort of haphazard compilation, rather sketchy, but the literary style is easy, the readability being sacrificed to brevity. This is explainable by the difficulty in correlating the various references for which credit is given in foot-notes.

On the whole the work contains a great deal of very practical information and is well worth reading.

J. W. S.

DISEASES OF THE THYROID GLAND. By Arthur E. Hertzler, M.D., F.A.C.S., Professor of Surgery, University of Kansas Medical School. Illus. 250 pages. St. Louis: The C. V. Mosby Co., 1922.

This book reflects the experience of a surgeon who works in what he considers a small country hospital at Halstead, Kansas. The preface details, in an interesting way, the advantages and disadvantages of this situation. Dr. Hertzler's hospital is not so very small, since the reviewer, who has passed through Halstead on automobile tours more than once, estimates its capacity at about one hundred and fifty beds.

Dr. Hertzler states in personal conversation that his book deals largely with the pathology and the pathological anatomy of goiter. Still, the reviewer feels that there is very much else between the covers which is well worthy of perusal. The first chapter deals with etiology, in which all of the current theories are reviewed without anything of note being added to them by this author. He sums up this chapter by stating his own opinion that a disease is not inherent in the thyroid gland, and while a removal of thyroid tissue goes far toward curing most patients with toxic manifestations, still it is highly unscientific for us to stop here and fail to go back to a fundamental cause outside of the gland.

If a less gifted pathologist than Dr. Hertzler classified the diseases of the thyroid gland as he does, many surgeons would feel like disagreeing with him in several respects on this phase of the subject. It seems to Dr. Ives, and others with whom I have talked, that the simple classification of Wilson is far more useful than any other. Still, I must admit that many of Hertzler's arguments intrigue one, for his microscopic anatomy is not only interesting, but usually convincing.

The chapter on hospital management of goiter patients, by Dr. Chesky, contains practically all that is valuable in the way of preparation and postoperative treatment. In a work of this size, he could not, of course, go more into detail as would have seemed desirable. Many very excellent drawings by Tom Jones illustrate the anatomy of the gland as well as the operative technique.

The form of thyroidectomy which Hertzler does is standard in every respect. I feel that the procedure could be simplified and still be adequate to the needs of most men. As experienced and gifted an operator as I know Dr. Hertzler to be, he could do all he describes and illustrates within ordinary time

limits, though the resources of many others would be taxed in carrying out the rather complicated procedure.

I differ with Hertzler with regard to technique to this extent: I do not feel that one type of thyroidectomy is by any means suited to the needs of all patients on whom we intend to remove thyroid tissue. I agree most heartily with what he writes about anesthesia in these cases; he seems to value local infiltration as it should be valued. W. B.

PULMONARY TUBERCULOSIS. By Maurice Fishberg, M.D. Clinical Professor of Medicine, University and Bellevue Hospital Medical College; Chief of the Tuberculosis Service, Montefiore Hospital for Chronic Diseases, and of Bedford Hill Sanatorium for Incipient Tuberculosis. Third Edition, Revised and Enlarged. Illustrated with 129 engravings and 28 plates. Lea & Febiger, Philadelphia and New York. 1922. Price \$8.50.

The third edition of this excellent work meets every expectation of the reviewer. It covers various subjects of the tuberculosis problem in a sane way. Newer ideas and better experience is easily seen. It is up to the minute as far as our present day conception of tuberculosis goes. The chapter on pneumothorax has been enlarged, and covers the subject almost as well as a monograph. No fads or fancies, but real honest advice is given in this chapter. The question as to whether the X-ray, physical signs or history represent the best way to diagnose tuberculosis is well brought out by the author. He states that certain conditions are best determined by one or the other method, and by combining the three, the only true solution of the problem is found.

Fishberg's attitude on tuberculin has not changed; in fact, he states that tuberculin tests are not at all diagnostic for active tuberculosis. His general advice in the management of the tuberculous sick is also good.

The third edition fulfills the need of the general practitioner as well as the expert on tuberculosis.

J. J. S.

PRACTICAL THERAPEUTICS, With Especial Reference to the Application of Remedial Measures to Disease and Their Employment Upon a Rational Basis. By Hobart Amory Hare, M.D., LL.D., B.Sc. Professor of Therapeutics Materia, and Diagnosis in the Jefferson Medical College of Philadelphia. Eighteenth Edition, Enlarged, Thoroughly Revised and Largely Rewritten. Illustrated with 144 Engravings and 6 Plates. Publishers, Lea & Febiger, Philadelphia and New York, 1922. Price \$6.50.

The author in his preface of the eighteenth edition states that the object of the book is to place the subject of treatment so that it may be applied at the bedside in a rational manner. The book fully meets the requirement. Comment is not necessary, for the eighteenth edition of the volume speaks for itself. It is a reference work well worth adding to one's library.

A. C. C.

DISEASES OF THE SKIN. By Richard L. Sutton, M.D., Professor of Diseases of the Skin, University of Kansas School of Medicine; former Chairman of the Dermatological section of The American Medical Association; Assistant Surgeon, United States Navy, etc. With nine hundred sixty-nine illustrations. Fourth edition revised and enlarged. C. V. Mosby Co., St. Louis, 1921. Price, \$9.50.

It is indeed a pleasure to read over Sutton's latest Dermatology. It is up to date, the photographs and microphotographs are clear and instructive and the description of disease processes is clean cut and to the point.

The publisher is also to be congratulated on his part of the work.

R. S. W.

THE JOURNAL OF THE Missouri State Medical Association

The Official Organ of the State Association and Affiliated County Societies
Issued Monthly under direction of the Publication Committee

Volume XX

ST. LOUIS, MO., MAY, 1923.

NUMBER 5

E. J. GOODWIN, M. D., EDITOR
3529 Pine St., St. Louis, Mo.

PUBLICATION { W. H. BREUER, M. D., Chairman
COMMITTEE { S. P. CHILD, M. D.
M. A. BLISS, M. D.

ORIGINAL ARTICLES

THE BIRTH OF SCIENTIFIC SURGERY Hodgen Lecture.*

LEWIS S. McMURTRY, M.D., LL.D.

LOUISVILLE, KY.

"One of the few, nature's interpreters,
The few, whom genius gives a light to shine."

—Rogers.

We have assembled this evening to honor the memory of John Thompson Hodgen, a master surgeon, eminent citizen, and acknowledged leader in our profession.

Dr. Hodgen was born in 1826 in La Rue County, Kentucky, within a few miles of the birthplace of Abraham Lincoln. Hodgenville, the county seat, bears the name of his ancestors, who were among the early settlers there. He came to St. Louis as a youth to study medicine, and his entire professional career was passed here. He graduated in 1848 and died in 1883. He possessed a vigorous mind of high order, and was an earnest student of the medical sciences. He had mechanical genius, and was original in many surgical methods. He made enduring contributions to surgery. From the time of his graduation in medicine until his death he was an active teacher of anatomy and surgery, and found his most fertile and congenial field in clinical teaching. His character was cast along noble lines. He was strong in his convictions, sincere in his expressions, loyal to his friends, tender in sympathy, dignified in bearing, and to all was added the daily walk of a stainless life. Most probably he was at his best with his pupils. His influence was inspiring, and the ideals he established in their minds were lofty and pure. He was the friend of the younger members of the profession, rejoiced in their success, and extolled their merits. Those now living who were his pupils carry his image enshrined in their hearts, and his example has been a guide to them through all these years. He was greatly honored by his profession.

He was president of his local and state societies, and president of the American Medical Association. At the International Medical Congress in Philadelphia in 1876 he won high honors, and took his place by merit among the leading surgeons of that period. He was always unassuming, and never sought to monopolize the honors of his calling. He had great charm of manner, perfectly free from ostentation, and inspired that full confidence which a generous and sincere nature impels.

And now almost forty years after his death, we are assembled here to honor the memory of John T. Hodgen. In doing so we are observing a custom long established in our profession. The Harvey Lecture and the Hunterian Oration in England have annually renewed the inspiration and example of those great creative minds, and held them up to each succeeding generation of physicians and surgeons. This custom provides a monument more enduring than bronze. To have so lived and labored that one's life work goes on through the years with widening circle to elevate and inspire future generations is in a certain sense to be immortal.

I pause here a moment to ask what is the purpose of a monument? Certainly it is not for the dead. The lad who first visits Washington and gazes upon that graceful shaft which rears its top aloft to catch the early sunshine, naturally asks himself what virtues and deeds of the Father of his country are commemorated thereby. Therein is the inspiration and the lesson that he may carry with him through life. The monument erected here to John Hodgen's memory, and renewed from year to year, will likewise move to noble endeavor and high achievement the younger members of the profession who aspire to honor and service.

My special purpose this evening is to describe the state of surgical science in Hodgen's time, that is, during the years from his graduation in 1848 to his death in 1883, a period of 35 years. It is not just to measure his achievements by present day standards, but to view his life work in the light of knowledge existing at that time.

The science and art of surgery of the present

*The third anniversary Hodgen Lecture, delivered by invitation under the auspices of the St. Louis Surgical and Medical Fund Societies, January 24, 1923.

day are based upon knowledge accumulated through centuries of patient study and toilsome investigation by many devotees. There have appeared men of genius from time to time, whose achievements have been so important and far-reaching that successive eras have thereby been established. Hodgen's career closed just on the verge of the Listerian era, which has placed surgery upon an exact scientific foundation and made it the crowning glory of the healing art.

The most casual student of medical history cannot fail to be impressed with the epochal character of three great discoveries in medicine: First, the discovery of the circulation of the blood by William Harvey in the early part of the seventeenth century; second, the discovery of anesthesia by W. G. T. Morton in the middle of the nineteenth century; and third, the discovery of the invisible life all about us, and its relation to vital processes and to the causation of infectious diseases, by Louis Pasteur, and this knowledge applied to wound treatment by Joseph Lister, culminating in the antiseptic system of surgery. This in the last two decades of the nineteenth century.

But the period to which I shall limit myself is the latter half of the eighteenth century, from 1750 to 1800. In order to fix this particular era of the world's history more definitely in mind, let me point out that it was during this period that the American colonies acquired their independence and the United States came into existence as a nation. Our national heroes, Washington, Jefferson, Lafayette and Franklin were in the midst of their great achievements; a time, as history goes, not remote at the present day. I would have you note that this was more than one hundred years after the discovery of Harvey, and almost a century before the discovery of anesthesia.

Physicians of the present age, who have been educated in the science and art of surgery during recent years, and have participated in its glorious achievements, can scarcely realize the crudity and poverty of scientific knowledge at the beginning of this period. Long before this time there were in the various European countries learned physicians, men educated and compelled to read and speak Latin, but surgery was not within the scope of their study or practice: Only one name from Hippocrates to Hunter stands out as an exponent of surgery in approach to a scientific position. This is the name of Ambroise Paré, a great Frenchman who lived and worked and wrote during the middle and latter part of the sixteenth century. He began his career as a barber and became the greatest surgical authority in Europe. He was a contemporary of Vesalius, the great anatomist.

He was not a scientist, but a clinician of vigorous mind, close powers of observation, and common sense. He demonstrated that gunshot wounds were not necessarily poisoned, and that, if treated cleanly and supported, the parts would heal without the application of boiling oil, as was the universal treatment of that day. He invented the ligature as a means of hemostasis in place of the actual cautery. He wrote on anatomy and surgery, on head injuries, and on the plague and smallpox.

During the middle of the eighteenth century, Albrecht von Haller, of Bern, the father of scientific physiology, was a teacher of surgery. He was possessed of a colossal mind and wrote learnedly upon surgery. He endeavored to elevate it to the dignity of science, and coupling it with anatomy and physiology made an effort to raise it from the degraded position it occupied. So far as is known he never operated and knew nothing practically of surgery. As a matter of fact, surgery remained where Ambroise Paré left it in 1590 until 1748, when John Hunter, the Father of Scientific Surgery, appeared in London. It is with the life work of this mighty man, whom Professor Gross pronounced the grandest figure in the history of our profession, that we are concerned.

John Hunter was born at Long Calderwood, Lanarkshire, Scotland, on the fourteenth of February, 1728. His father came of an old family in Ayrshire, and was a man of some education with a high moral and religious character. His mother was the daughter of the treasurer of Glasgow and possessed a good education. He was the youngest of ten children, and his father was nearly seventy years of age when he was born. His father had a small farm which he cultivated and which yielded a scant living for a family of five boys and five girls. When John was ten years of age his father died, and being the baby of the family it may be presumed that he was much indulged. As a result his education was neglected, he grew up a wayward boy, impatient of restraint, irascible and rude in manner, but not idle or dissipated. Until he was twenty he had manifested no inclination to any particular calling, and had no interest in books or scientific pursuits.

When he was twenty years of age John decided to go to London and join his brother, William, by ten years his elder, who was doing a lucrative medical practice there, and had attained considerable distinction as a teacher of anatomy. It is most pertinent that we digress here for a moment to consider this elder brother's character and position.

William Hunter at fourteen was a student at the University of Glasgow. His family expected him to become a clergyman, and his education was planned accordingly. He was

intelligent, ambitious and attractive; a close student and eager in pursuit of knowledge. He became averse to entering the ministry, and having formed an intimate friendship with Dr. William Cullen (who afterward became a great teacher and clinician), he decided to study medicine. He studied medicine in Edinburgh and went to London to practice. Here he succeeded and soon became a popular teacher of anatomy and surgery. In 1748 he made a trip to Holland and to Paris, and on his return gave up surgery and devoted himself to obstetrics. He was a university student, erudite and accomplished, and a graceful public speaker. He attracted leading men in medicine, and cultured society was found at his house. He conducted a private school of anatomy and surgery, and was assiduous in the work of preparing and collecting specimens for his museum, which later he gave to the University of Glasgow.

John Hunter was a rough and uncouth country lad from the rugged north when, at the age of twenty, he was received into the home of his brilliant older brother in London. I am sure we can all readily complete the picture in our imagination. The younger brother was rude in manner both as boy and man, intolerant and outspoken, with slight regard for the feelings and opinions of others. He was received cordially and treated generously. He became a member of his brother's household and immediately received employment in his brother's anatomical rooms. He proved an apt pupil. From the beginning he exhibited great proficiency in dissection, and quickly mastered every task to which he was assigned. His application and enthusiasm were unbounded, and he showed the originality of genius in his work. He was aroused to a new life, and his industry and persistence attracted attention. The mind that had been aimless and idle had come into an atmosphere suited to its activity. The desire for knowledge became a passion and a stimulus to incessant work. And how he did work! He dissected, he investigated, he thought. He had the constant influence of his brothers' example and leadership. He saw the wonderful work his brother was doing in building up a great anatomical museum, and he had the privilege of association with the educated men attracted by his brother.

William Hunter was anxious that his brother should in some degree make up the deficiencies of his early education, and, now that he was twenty-five years of age, urged him to go to Oxford and acquire some knowledge of the languages. John looked upon such studies as a waste of time, and positively refused to accept his brother's advice. Doubtless he regretted this decision in later life, for he was always handicapped by his errors in spelling

and composition, which disfigured his writings and obscured his utterances as a teacher. As a result his voluminous writings upon scientific subjects when prepared for publication had to be revised and corrected by his pupils. But no one helped him in thinking, or in the general manner of expression, for in all his published and unpublished manuscripts there is the same rugged style. Sir James Paget says he has never seen an autograph letter by him in which either the grammar or the spelling is correct.

The year following his arrival in London, John was placed by his brother under the tuition of Cheselden, a famous surgeon of his time, at the Chelsea Hospital. Two years later when Cheselden retired, he went to St. Bartholomew's Hospital, where he became a pupil of Percival Pott, and remained under his tutelage for three years. Then he became a surgeon's pupil at St. George's Hospital, and soon afterward was appointed house-surgeon there. Throughout these years of hospital pupilage he kept at work as a student and tutor in his brother's dissecting-room, and worked incessantly. He did much original research work in conjunction with his brother. When he was thirty-one years old and had been with his brother eleven years, his health broke down as a result of his incessant labors. By the aid of friends he secured a position as staff surgeon in the army, and served in Portugal, where he studied diligently and collected the material for his work on gunshot wounds. After four years he returned to London restored to health but poor in purse. His position in his brother's school was occupied by Mr. Hewson, and the hospital connections he had formed were severed. But he had lost nothing in pursuit of knowledge during those years of absence. In addition to his work on gunshot wounds and his official duties, he found time for physiologic and other researches. He had begun his wonderful studies of the structure, function and habits of various animals and plants. He investigated the condition of coagulation of the blood, and recorded valuable observations on inflammation.

And now at the age of thirty-five we find him back in London, with his fortune to make, but splendidly equipped with health, knowledge and courage. He determined to become a practicing surgeon, and for an immediate income began teaching private classes in anatomy and operative surgery. His struggles as a young practitioner were arduous and discouraging, for his manner was not pleasing; rather was it abrupt and forbidding. But Hunter allowed himself no leisure. In addition to his classes, he took private pupils in his home, and worked incessantly with teaching and research. He began the collection and preparation of specimens for his museum, which later became the

chief work of his life. In 1767 he was elected to membership in the Corporation of Surgeons, which later was merged into the Royal College of Surgeons. In 1768, when he was forty years of age, mainly through his brother's influence, he was elected to a vacancy on the staff of St. George's Hospital. His position was now well established, and his success as a metropolitan surgeon was assured. He moved into a larger house and took more pupils, and he drew to him other pupils at St. George's. It was now that he established those habits of prodigious and prolonged labor which he followed for thirty-five years. He rose at five o'clock in the morning, and after a hasty toilet worked in his laboratory until nine, when he breakfasted. He received patients in his office until twelve, then went out to make professional calls and visit the hospital. He returned home at four and dined, then slept for an hour and worked in his laboratory until midnight, retiring at one o'clock.

At the age of forty-three, Hunter married Miss Home, the daughter of an army surgeon, and sister of Sir Everard Home, who as a lad was an inmate of the Hunter home and a favorite pupil of his brother-in-law. He now purchased a lot in Earl's Court, two miles outside of London, and erected a commodious house which afforded, in addition to a summer residence for his family, accommodations for his anatomical and other collections. Within the spacious grounds of this place, he collected animals, birds, fishes, reptiles and insects. His studies in comparative anatomy and natural history made him a Fellow of the Royal Society and formed the basis of many of his most important studies in physiology and surgical pathology.

Although making a handsome income from his profession, he was prodigal in his expenditures for material for his museum. From the Zoological Gardens, from sea captains sailing abroad, from friends in town and country he was constantly obtaining specimens to carry on his studies. His passion for the study of living things was so strong that he was impatient at interruption and untiring in his pursuits. For practice he had no fondness unless the case was of scientific interest. One day when the hour came to leave off his investigations and go upon his round of professional visits, he said to a favorite pupil, as he laid aside his scalpel and forceps, "Well, Lynn, I must go now and earn that damned guinea, or I shall be sure to need it tomorrow."

Notwithstanding his imperfect education, Hunter was a prolific writer, and recognized the importance of recording scientific observations accurately as soon as made. "It resembles," he said, "a tradesman taking stock, with-

out which he never knows what he possesses or in what he is deficient." Upon all scientific matters he was totally devoid of egotism. He never tried to boost an attractive theory, or add to the strength of evidence by strong personal assertion. Rather would he say: "We must wait till we get all the facts," or "I am disposed to believe," etc. Oftentimes in his demonstrations he would say, "Don't take notes of this, I may have to change it next year." Among the masses of facts recorded by him, it is difficult to find an error of observation. The errors found in his works are errors of deduction or reasoning, not of observation. He indulged no fancies; he had the scientific instinct which valued only truth as tested by accurate observation. He was slow to publish the knowledge he had laboriously acquired. He worked for eighteen years before he published anything in his own name. He was forty-three when he published his first book, that on the teeth. He began his studies on the blood and inflammation while a student, and the experiments were repeated with marvelous care and patience. He published it forty years after beginnig this particular work. In 1772, the year before his death, he contributed to the Philosophical Transactions a paper on Bees, the result of his study of hive-bees during a period of twenty years.

Along with these qualities of mind, Hunter was endowed with great reasoning powers, and no one was capable of deeper thought or a more philosophical view of any subject which engrossed his attention. His great aim was to study and teach physiology as an experimental science and as the only true basis of medicine and surgery. He employed the inductive method of investigation, and every source of information, including comparative anatomy, natural history and pathological anatomy, were utilized in the study of surgical pathology and surgical methods of practice. He was unique and original in that he did not rely upon books for his knowledge, or the work of others. He wrought with his own hand and eye. He had no library in the true sense of that word, and read but little. He studied Nature's works at first hand. He relied upon the dissecting-room, the autopsy table, the preparation of specimens and the enclosed grounds at Earl's Court where he had many varieties of animals, reptiles and insects. He kept the book of Nature spread out before him. His pupils had often to tell him that certain observations had been made before. He was scrupulously careful never to appropriate that which was not his own.

When near fifty years of age Hunter suffered an attack of gout, accompanied with cardiac symptoms. In 1775 he had a severe attack of angina and was never quite well

afterward. But he worked unremittingly to the end. The attacks were easily induced by anger, and he used to say that his life was at the mercy of any knave who should chance to worry him. On the sixteenth of October, 1793, in his sixty-fifth year, he died, while attending a meeting of the Governors and Surgical Staff of St. George's Hospital. His remains repose in Westminster Abbey, beneath a tablet placed by the Royal College of Surgeons.

The British Government by an act of parliament purchased Hunter's collection of anatomical, surgical and zoological preparations which is preserved in the museum of the Royal College of Surgeons. By constant additions, it now forms the greatest collection of the kind in the world. The collection at the time of Hunter's death embraced nearly 14,000 specimens, wet and dry. Every specimen was accompanied, when practicable, by a brief account of a case from which it was obtained, or, if a bird, reptile or insect, by a written opinion. At least two-thirds of this collection was prepared by his own hand.

To enumerate Hunter's vast labors as an original investigator would carry us far. The first ten years of his professional life were devoted to anatomy, human and comparative, of which he made himself a master. He devoted his later years to researches in comparative anatomy, physiology and surgery, being engaged in practice at the same time. A list of his principal publications will be found appended to this paper.

Notwithstanding his profound knowledge of anatomy and surgical pathology, Hunter never ranked high as an operator. Percival Pott, one of his contemporaries, far surpassed him in this respect. The fact is Hunter did not indulge an exalted opinion of operative surgery, remarking that "in the main an operation is a reflection on the healing art, a tacit acknowledgment of the insufficiency of our resources." In his day anesthesia was unknown and sepsis was rife in almost every operative case.

He is best known to the surgeons of the present day by his operation for aneurism, and his epochal exposition of syphilis. These achievements, great as they are, were mere by-products which came from the laboratory of his restless brain. He is the first and greatest exponent of scientific research as a basis of surgical knowledge and practice. He is the father of us all, physicians, surgeons and laboratory workers.

When Hunter entered upon the study of his profession, medicine and surgery, although emancipated from much of the superstition and prejudice of a former age, had not attained to the rank of the sciences. This was espe-

cially true of surgery, which had so recently evolved from the work of the barber. The very best surgery before Hunter came was only that of empiricism based upon conflicting experience. Surgery and physiology were far apart; no one strong mind had ever deeply studied both, recognizing they were part of the science of living things. This was Hunter's great achievement. He welded scientific knowledge with lessons of experience; he submitted every doctrine to the test of demonstration, and brought scientific methods into the study of surgery. That is the basis of surgery at the present day; it was unknown prior to John Hunter. He neither followed others, nor merely drew a plan upon which others might work; but he wrought a greater work in the science of living things than any man before him. Incidentally, he did a great service for surgeons. Before his time they held an inferior place in the medical profession, and practically had no social standing whatever. Following Hunter the surgeons became the chief anatomists, equal as physiologists and pathologists, and were received into the ranks of the educated class. Sir James Paget exclaimed in his masterful Hunterian oration, "Yes; Hunter did more than anyone to make us gentlemen."

It is difficult to measure the influence of this master mind on the progress of surgery. His life of unremitting toil and devotion demonstrates that "in the world of mind he that is mortal may produce that which is immortal."

The Hunterian Museum is the Mecca of students of surgical pathology from all parts of the world. There is scarcely a textbook on surgery in any language which has not drawn upon this treasury of knowledge for illustrations of surgical diseases. His published works have been translated into all European languages.

Perhaps the brightest jewels in John Hunter's crown were his pupils, who lived in his home and with whom he cultivated the greatest intimacy. Here they are:

Edward Jenner, the immortal discoverer of vaccination, the most beloved of all Hunter's pupils, and with whom there existed a life-long friendship.

John Abernathy, whose name alone recalls his famous career.

Henry Cline.

Philip Syng Physick, of Philadelphia, who occupied the chair of Surgery in the University of Pennsylvania, and brought Hunterian surgery into America.

Sir Astley Paston Cooper, who became the most eminent teacher and practitioner of surgery in England.

Sir Everard Home.

John Thomson.

James Macartney.
Thomas Chevalier.
James Wilson.
Edmond Coleman.

These constitute a galaxy of illustrious men, who, inspired by the master whose mantle they wore, transmitted that mantle resplendent to their successors.

The following chronological list of John Hunter's writings is taken from Ottley's Life:

1762. 1. On the Descent of the Testis.
1762. 2. On Absorption by Veins.
1766. 3. An Account of an Amphibious Bipus, by J. Ellis, with Supplement by J. Hunter.
1771. 4. Treatise on the Natural History of the Human Teeth, Part I.
1772. 5. On the Digestion of the Stomach after Death.
1773. 6. Anatomical Observations on the Torpedo.
1774. 7. An Account of Certain Receptacles for Air in Birds, Which Communicate with the Lungs and Eustachian Tubes, etc.
1774. 8. Observations on the Gillaroo Trout, Commonly Called in Ireland the Gizzard Trout.
1775. 9. An Account of the Gymnotus Electricus.
1775. 10. Experiments on Animals and Vegetables, with Respect to the Power of Producing Heat.
1776. 11. Proposals for the Recovery of People Apparently Drowned.
- 1776-1792. 12. Croonian Lectures on Muscular Motion (never printed).
1777. 13. On the Heat of Animals, etc.
1778. 14. Treatise on the Natural History of the Human Teeth, Part II.
1779. 15. An Account of the Free Martin.
1780. 16. Account of a Woman Who had the Small-pox During Pregnancy, and Who Seemed to Have Communicated the Same Disease to the Foetus.
1780. 17. An Account of an Extraordinary Pheasant.
1782. 18. Account of the Organ of Hearing in Fishes.
1784. 19. Observations on the Inflammation of the Internal Coats of Veins.
1785. 20. Description of a New Marine Animal, in a Letter From Everard Home to J. Hunter, F. R. S., with a Postscript by Hunter, Containing Anatomical Remarks Upon the Same.
1786. 21. Treatise on the Venereal Disease.
1786. 22. Observations on Certain Parts of the Animal Economy.
23. A Description of the Situation of the Testis in the Foetus, With Its Descent Into the Scrotum.
24. Observations on the Glands Situated Between the Rectum and the Bladder, Called Vesiculae Seminales.
25. On the Structure of the Placenta.
26. Some Observations on Digestion (almost an entirely new paper).
27. On a Secretion in the Crop of Breeding Pigeons for the Nourishment of Their Young.
28. On the Color of the Pigmentum Nigrum in Different Animals.
29. The Use of the Oblique Muscles.

THE DIAGNOSIS OF PERNICIOUS ANEMIA*

RUSSELL L. HADEN, M.A., M.D.

ROSEDALE, KANSAS

In an introduction to a paper entitled "On the Constitutional and Local Effects of Disease of the Suprarenal Capsules," Thomas Addison in 1855¹ first described pernicious anemia as a clinical entity. He gave a picture of the disease much as we know it today and stated that in his experience, with one exception, it had ended fatally. He defined it as "a general anemia occurring without any demonstrable cause whatsoever—cases in which there had been no previous loss of blood, no exhausting diarrhea, no chlorosis, no purpura, no renal, splenic, miasmatic, glandular, strumous or malignant disease."

In the sixty-seven years intervening since Addison's original description little has been added to our clinical knowledge of the disease. Certain rather characteristic qualitative changes have been found to occur in the blood which were thought by Ehrlich to represent a reversion to the embryonal form. It has been noted that free hydrochloric acid is absent from the gastric juice, and it has been pointed out that the bone marrow is hyperplastic. It has become known that certain symptoms occur rather uniformly in the disease, such as glossitis, and those dependent upon degenerative changes in the spinal cord. However, the two essential features given by Addison remain—that the anemia is without demonstrable cause, and that it is almost uniformly fatal.

Since pernicious anemia is a clinical syndrome, the most essential feature of which is that the etiology is unknown, the diagnosis on the clinical side must necessarily be made by exclusion.

The disease is characterized clinically by

*Read before the Kansas City Academy of Medicine, January 12, 1923.

pallor, progressive weakness, shortness of breath, sore tongue, digestive disturbances, diarrhea, and paresthesias. The pallor, weakness and dyspnea result from the anemia, and the impaired digestion and diarrhea largely from the achylia gastrica. The glossitis, the anemia, the absence of free hydrochloric acid from the gastric juice, and the degenerative changes in the spinal cord must be common manifestations of the action of the toxic substance causing the disease. The symptoms enumerated occur in general only in a well advanced stage of the disease, and there is not a single feature which is in any way peculiar to pernicious anemia alone. Similar symptoms may occur in other types of anemia and in a wide variety of pathologic conditions. We would suspect pernicious anemia in a patient presenting such symptoms but could not make a positive diagnosis on such evidence alone.

The laboratory findings are rather more constant than the clinical symptoms. However, no one of these features is peculiar to pernicious anemia alone, although certain features occur quite regularly in this disease and in few other conditions. The characteristic changes in the blood are a marked reduction in the red cells and platelets, a leucopenia, a color index and volume index above 1, anisocytosis, poikilocytosis, and the presence of nucleated red cells.

A similar blood picture may be found in an anemia due to: (1) certain intestinal parasites, especially the fish tapeworm, *bothriocephalus latus*, (2) certain organic poisons, such as phenylhydrazine, (3) syphilis, (4) pregnancy and the puerperal state, (5) malignant disease, especially of the stomach and colon, and (6) chronic hemolytic jaundice. We must exclude all such possible causes in patients whose chief complaint is weakness and who have an anemia with a color index above 1.

Such confusing conditions may be excluded for the most part by certain negative laboratory evidence such as the absence of all bleeding, even by tests for occult blood, the absence of intestinal parasites capable of producing such an anemia, the absence of a positive Wassermann test, and if hemolytic jaundice be suspected, the absence of an increased fragility of the red cells and an abnormal number of reticulated red cells.

The rate of blood destruction may be gauged by the excretion of urobilin and urobilinogen in the urine, stool, or duodenal contents. This again, however, gives no clue as to the cause of the increased hemolysis even if such be demonstrated.

Since in pernicious anemia, an achylia gastrica is practically constant, a gastric analysis is one of the most essential features of the study of a possible case.

While we may suspect pernicious anemia from the appearance or symptoms of a patient, the diagnosis must necessarily be made from the laboratory findings, principally the blood picture and the results of gastric analysis.

As a means of emphasizing the essential laboratory findings in this disease, I have analyzed the results of the study of twenty-nine undoubted cases of pernicious anemia, which I have had the opportunity of seeing during the past eighteen months. I have made rather complete studies on the blood of all and have available the results of the gastric analysis in most of them. All hemoglobin determinations have been made by the oxygen capacity method. The volume index has been determined on each blood. The color index has been calculated on the basis of 15.6 grams of hemoglobin as 100 per cent.²

The significant blood findings are summarized in the following tables, the red cell findings being given in Table I. The average red cell count is 1,700,000. The majority of the active cases have a count under two million. The average is made somewhat high by the inclusion of the counts on several cases during remission. The table emphasizes the fact that the anisocytosis, poikilocytosis, basophilia and nucleated red cells are associated typically with very low counts and disappear as the count rises. It also emphasizes how little is the value of these qualitative changes in the early stages of the disease when the diagnosis should be made.

The white counts vary from 1,950 to 6,450 per cmm. The almost constant leucopenia is due mainly to a decrease in the cells arising

TABLE I
RED BLOOD CELL FINDINGS IN PERNICIOUS ANEMIA.

R.B.C. in M.	Anisocytosis	Poikilocytosis	Basophilia	Blasto-
0.74	+++	+++	++	++
0.84	+++	+++	+	5
0.98	+++	+++	0	++
0.99	++	+	+	0
1.00	+++	+++	+	++
1.24	+++	+++	0	-
1.38	-	-	-	0
1.39	+++	+++	0	-
1.42	++	++	-	5
1.52	++	++	+	2
1.58	++-	++	0	0
1.61	+++	+++	0	-
1.64	+++	++	-	0
1.65	0	0	0	1
1.73	++	+++	0	0
1.75	++	+	*	0
1.80	++	0	0	0
1.87	0	0	0	0
1.88	+	+	0	0
1.99	-	-	0	0
2.10	++	++	0	0
2.19	0	0	0	0
2.27	++	+	0	0
2.33	++	++	-	2
2.41	+	+	0	0
2.60	-	-	-	0
2.79	0	0	0	0
2.93	+	+	0	0
3.33	0	0	0	0
1.79	Average			

from the marrow. The platelets are usually reduced but are very variable (Table II).

TABLE II
WHITE CORPUSCLES AND PLATELETS IN 24 CASES
OF PERNICIOUS ANEMIA.

White Blood Cells per cmm.	Marrow Cells	Lymphocytes	Mono-nuclears	Platelets
1950	47	57	2	-
2060	-	-	-	+
2850	72	26	2	++
3000	59	37	4	+++
3025	58	35	7	++
3550	49	49	2	+
3600	49	43	3	-
3700	63	30	7	+++
3800	-	-	-	-
3860	33	63	4	+++
4060	64	42	4	+
4250	60	35	5	++
4300	67	28	5	+
4400	-	-	-	-
4500	67	31	2	+
4600	68	28	4	++
4700	67	30	3	+++
4750	47	47	6	-
5000	77	18	5	++
5250	77	19	4	++
5700	68	27	5	+++
6250	82	15	3	+
6400	69	23	8	+++

The blood changes so far enumerated are, however, like the symptoms of pernicious anemia in that they are in no way peculiar to the disease, but occur characteristically in all types of hemolytic anemias.

There are certain features which are very much more characteristic and constant. These are the variation in certain indices, expressing the relation between the hemoglobin and the volume, and the number of the red cells. The color index, which is calculated by dividing the hemoglobin in per cent. by the percentage of cells, expresses the relationship between the number of cells and the hemoglobin. It is commonly thought that the color index expresses the percentage of the hemoglobin in the red cells, but the index in fact depends upon both the volume of the cells, which is a very variable factor, and the hemoglobin percentage. The value of the color index in differential diagnosis of the anemias is materially lessened, since the hemoglobin estimations as commonly done, are so often inaccurate, the normal with the method used being unknown. The color index is usually one or more when correctly determined, although it is not constantly so.

The volume index, a term introduced by Capps,³ expresses the relationship between the volume of the red cells and the number of cells. It indicates the relative volume of the average red cell. It depends entirely on the number and size of the cells. It is determined by dividing the percentage of packed cells relative to normal by the percentage of red cells. The volume of cells is readily determined by centrifuging ten c.c. of blood to

which 2 c.c. of isotonic (1.6 per cent.) sodium oxalate is added, until complete packing is attained. With a count of 5 million cells per cmm, the volume is roughly 50 per cent. The volume of packed corpuscles obtained on centrifuging the 10 c.c. constitutes the normal or 100 per cent. This must be determined *separately for each centrifuge*. For any blood the mass of packed red cells is expressed in percentage relative to the normal just as the hemoglobin is expressed in percentage of a normal. The ease with which a volume index may be determined should be emphasized. It is much simpler than the accurate determination of a color index.

A third index which I have termed the saturation index expresses the relative percentage of hemoglobin in the red cells. It is determined by dividing the percentage of hemoglobin by the percentage of packed cells. In normal blood the three indices are all 1 within the limits of error.⁴

A comparison of the three indices in the 29 cases is given in Table III. The color index

TABLE III
COMPARISON OF THE HEMOGLOBIN AND VOLUME
PERCENTAGES AND THE THREE INDICES IN 29 CASES
OF PERNICIOUS ANEMIA.

Hemoglobin in percent	Volume per cent of R.B.C.	Color Index	Volume Index	Saturation Index
18	21	1.21	1.41	0.86
19	33	0.80	1.30	0.62
25	29	1.23	1.46	0.84
25	28	1.26	1.40	0.90
26	27	1.55	1.61	1.97
28	27	1.40	1.38	1.01
30	33	1.09	1.21	0.90
36	42	1.09	1.27	0.66
37	37	1.32	1.32	1.00
37	39	1.16	1.22	0.93
38	48	1.10	1.38	0.79
38	81	0.84	1.77	0.47
39	48	1.08	1.33	0.82
43	42	1.51	1.47	1.02
44	46	1.39	1.45	0.96
46	46	1.39	1.39	1.00
47	46	1.31	1.31	1.00
49	49	1.61	1.61	1.00
49	61	0.94	1.17	0.80
51	57	1.36	1.50	0.91
52	56	1.20	1.40	0.93
55	54	1.31	1.30	1.01
57	57	1.31	1.31	1.00
68	62	1.24	1.33	0.94
59	63	1.57	1.68	0.93
65	69	1.16	1.23	0.94
74	76	1.54	1.57	0.98
90	81	1.20	1.20	1.00
82	79	1.39	1.36	1.03
Av.	45	52	1.26	1.42
				0.90

is usually one or more than one. The volume index is much more constant since it is always greater than one. The saturation index is never more than one and is usually less than one. These figures simply mean that the average size of the cell in pernicious anemia is always greater than normal; that the hemoglobin percentage in the red cells is never more

than normal, and is usually less than normal. The increased color index which is relied on so much by many, depends entirely upon the fact that the average size of the red cell is greater than normal. It is not due to supersaturation of the red cells by hemoglobin, as is so commonly thought. Such does not occur.

The volume index is always greater than one and is always as great or greater than the color index. In a study of 116 individuals including both normals and those suffering from various types of anemia (Table IV), other than per-

nicious anemia, only two have been found who had a volume index over one. One was a case of aplastic anemia, the other a case of congenital hemolytic jaundice—conditions closely allied to pernicious anemia. The increased volume index has been present even in the remission of pernicious anemia, one as long as ten years. A summary of the characteristic changes in the blood is given in (Table V). The increased volume index is the only change constantly present.

The results of gastric analysis are available in 23 of the 29 patients. Free hydrochloric acid is constantly absent. The combined acid is usually very low and the hydrochloric acid deficit usually very high. Levene and Ladd,³ in a recent study of the gastric contents in pernicious anemia, found an absence of free HCl in 104 out of 105 cases. No patient found by us to have a volume index above one, has shown free HCl in the gastric contents.

The combination of an absence of free HCl in the gastric juice and an average sized red cell above normal, as indicated by a plus volume index, may be said to be constant in pernicious anemia. A plus color index when present, if correctly determined has the same significance as a plus volume index, but is not constantly present, however. A diagnosis of pernicious anemia should not be made unless the volume index is above 1 and free HCl is absent. While this combination of findings may possibly be found in some conditions other than pernicious anemia, I believe that we should consider such laboratory findings as constant, essential, and pathognomonic evidence of pernicious anemia, if such can be said of any condition in medicine.

Bell Memorial Hospital.

BIBLIOGRAPHY.

1. Addison, Thomas: Idiopathic Anemia: on the Constitutional and Local Effects of Disease of the Suprarenal Capsules. London, 1885.
2. Haden, R. L.: *Journ. Amer. Med. Assn.*, 79, 1496, 1922.
3. Capps, J. A.: *Jour. Med. Res.*, 5, 367, 1904.
4. Haden, R. L.: To be published in *Arch. Int. Med.*, April, 1923.
5. Levene and Ladd: *Bulletin Johns Hopkins Hosp.*, 32, 254, 1921.

TABLE V.

CHARACTERISTIC BLOOD CHANGES IN PERNICIOUS ANEMIA.

(1) Red Blood Cells:

- a. Diminished in number
- b. Unequal in size
- c. Irregular in shape
- d. Nucleated

(2) High Volume Index indicating an average sized cell greater than normal.

(3) High Color Index indicating a larger amount of Hb in the cell than normal.

(4) Leucopenia.

(5) Diminished Platelets.

TRANSFUSION IN THE TREATMENT OF ANEMIA

W. W. DUKE, M.D.,

AND

D. D. STOFER, M.D.

KANSAS CITY, MO.

It is our purpose in this paper to discuss briefly transfusion in the treatment of the anemias. The different anemias will be handled separately and the different indications in each type will be discussed. However, so far as transfusion is concerned the indication is the same for all anemias in three important respects. First, transfusion is an absolutely harmless method of giving an anemic patient a normal blood volume, that is, if the transfusion technique is flawless and if the donors are properly chosen. Second, the result is immediate. Third, the result is certain. Against medical treatment as opposed to transfusion three objections may be raised. First, anemia, which may be harmful or even dangerous, is allowed to persist during prolonged medical

treatment. Second, a good result from medical therapy in the severer cases is necessarily slow and at best requires a period of months before a normal blood volume can be restored. Third, results are uncertain, especially in the primary anemias and anemias caused by sepsis and often ends in failure.

Blood Volume.—Nothing is more important for a person's welfare than a normal blood volume. This is true when an individual is in a state of relatively good health; more so still when a person is in a state of ill health. The ill effect of anemia of the secondary type is felt more severely by the patient than is primary anemia of the same grade. This well-known fact is true even though the eventual outlook in the primary anemias is graver. A patient having secondary anemia with red count of three million and hemoglobin of 50 per cent. is as a rule ill in bed and in poor shape to work, to resist infection, or to overcome infection or other illness with which he may be affected. Patients with pernicious anemia, on the other hand, having a red count of three million, are, as a rule, up and about and seem to suffer fewer direct inconveniences. A primary anemia of this grade, however, eventually leads to atrophy and degeneration of tissues and is more seriously harmful.

Diagnosis of Anemia.—A few words may be admissible here concerning the diagnosis of anemia. A reduced blood count or hemoglobin content is evidence of anemia. The type of anemia can usually be determined by examination of a stained blood film. Anemia can be diagnosed readily, however, as a rule, by examination of patient's color and it is a mistake for physicians to depend entirely upon the laboratory findings for their viewpoint. Few diseases show more quickly and plainly in a person's appearance than anemia and from a patient's appearance one can really gain much useful information. Inspection of the lips, conjunctiva, cheeks, and tongue, in severe cases, will usually indicate whether or not a patient has an adequate supply of blood. Better information can be gained, however, by examination of the palms of the hand. The cheeks change color as a result of reflexes, such as blushing. The color of the lips is masked or changed by variance in thickness of the epithelial covering. The color of the conjunctivae is modified by infection. The color of the palm of the hand, in the opinion of the writers, is less influenced by such agents than is the face and by comparing the color of the patient's palm with that of a normal individual one can gain a splendid idea as to whether blood volume is normal, increased, or reduced. This gives an impression concerning blood volume or rather hemoglobin volume more than it does of blood quality, however, and

for the latter information blood counts and hemoglobin estimations are better guides. Many pale people, however, may have blood of relatively normal richness in cells and hemoglobin and yet be actually anemic with reduced blood volume so that blood counts are not necessarily the deciding factor.

In making a comparison between the patient's hand and that of a normal individual's, it is important that the hands be held at the same level below the heart. A hand held above the level of the heart for a moment becomes pale as a result of blood gravitating out of the arm. It is important to bear in mind also the fact that in pernicious anemia there is a tendency for the macrocytes (or large red cells) to lodge in the capillaries. Inasmuch as macrocytes make up a large proportion of the volume of hemoglobin in pernicious anemia cases, this lodging of macrocytes in the skin capillaries often masks the real anemia and gives one little idea concerning its real gravity.

Lindemann Method of Blood Transfusion.—Detailed discussion of the different methods of blood transfusion does not come within the scope of this paper. Suffice it to say that we have used both the citrate and Lindemann method and some years ago discarded the former as inferior. Lindemann's method appears to us to be the method of choice for the following reasons:

1. It is certain of success if the operators have mastered several fundamental points in technique.
2. The blood is out of the body on an average less than ten seconds so that it does not have time to become toxic from standing.
3. The blood is not mixed with any extraneous decalcifying agent.
4. The quantity of blood which can be transferred is unlimited and is at all times under the control of the operators. If a sufficient number of donors are provided it is as easy to give three quarts of blood as one pint.
5. It is practically never necessary to cut down on the vein on either patient or donor. Even in the transfusion of infants we have only had to cut down on the vein in one case.
6. Reactions are rare if the technique is flawless and when they occur, are too mild to be of consequence.

Choice of Donors.—Before the discovery of iso-agglutinins transfusion was dangerous and frequently resulted in death. Since their discovery death from a transfusion has been practically unknown in the hands of careful workers. One cannot emphasize too strongly, therefore, the importance of care in the selection of donors for blood transfusion. In the case of a small transfusion and in emergencies it is perhaps justifiable to use a universal (or group four) donor. There is little justifica-

tion, however, for the use of group four donors when adequate time allows the selection of a perfect match for the patient. This is occasionally difficult. Of healthy individuals only about seven per cent. fall in group three. Of individuals with anemia, especially pernicious anemia, group three is much more commonly met with. Normal individuals who fall in a given group are often compatible one with the other. In patients with anemia, however, the situation is not so fortunate and very often a group three patient will be incompatible with the great majority of group three donors. We have had one patient with advanced tuberculosis and secondary anemia, for whom we were unable to find a donor. In every instance not only did the patient's serum agglutinate the donors' corpuscles, but also the patient's corpuscles were agglutinated by donor's serum. In a patient with chronic arthritis and secondary anemia who belonged to group three it was necessary to chose from over five hundred donors before one was found which could be used. In several cases over one hundred donors were tested before a suitable one was found. These exceptional instances are fortunately rare and as a rule among several donors of a patient's group one can be found which is perfectly compatible. If this work is done carefully and final decisions are made only after the tests have stood several hours, reactions are rare and of little consequence. One exception to the above statement is of interest. We have encountered among anemic patients several who were hypersensitive to food—in fact to foods which had been eaten by the donors which were chosen. In each instance an allergic reaction took place during the transfusion which in one case was very alarming. In this patient (case of pernicious anemia) a transfusion of 1,000 c.c. was given with one large, full-blooded donor without ill effect. After fifteen minutes the second donor was started and during the administration of the first syringe of blood the patient complained of oppression in the chest. This was followed immediately by asthmatic breathing, severe pain in back and within a minute cyanosis, collapse, and coma. Breathing stopped and the pulse fairly disappeared. Adrenalin in large doses revived the patient, however, and after fifteen minutes she seemed to experience no further ill effect from it. This patient came from an asthmatic family, had been subject to hay fever herself, and was hypersensitive to lactalbumin. Milk had been a large constituent of the donor's diet.

We had a similar reaction, though much less severe, in a patient sensitive to tomato and cabbage. It so happened that tomato and cabbage had been partaken of freely by the donor the day before the transfusion. These

reactions were analogous, we believe, to those observed in breast fed babies made ill by some constituent of the mother's diet to which the infant is hypersensitive.

Size of Transfusion.—One frequently cannot say in advance how much blood will be required to restore a patient's blood volume. When transfusing, especially in secondary anemia, one should have an adequate supply of donors (perhaps two or three) on hand and should continue the transfer of blood until the patient's color is satisfactory—that is, until the palms of the hands are as red as those of a normal individual. The quantity required for this varies from 750 to 2,500 c.c. under ordinary conditions, although in two infants of 35 pounds 900 c.c. was required before normal color was obtained. It is needless to state that during transfusion it is advisable to watch the pulse rate and pulse volume and to inquire concerning a sense of oppression in the chest and head. No disturbance of note, however, has been observed in any of our cases preceding the appearance of a good, normal, ruddy color. We have never as yet observed a patient even temporarily embarrassed by the volume of a transfusion even though the quantity of blood introduced has usually been pushed until a satisfactory color has been obtained. In two instances we have given 500 c.c. of blood to 14-pound infants without even temporary ill effect. This would correspond in an adult of 140 pounds to 5 litres of blood. It is hard to believe that such volumes of blood can be introduced without temporarily embarrassing the heart, especially when we bear in mind that in chronic anemia the heart muscle is likely to be fatty and soft. The fact is, however, that the pulse usually slows during a transfusion and in spite of what might seem theoretically to be a strain upon the circulation, conditions improve almost invariably.

SECONDARY ANEMIA

Hemorrhage.—The ideal case for transfusion is anemia following traumatic or post partum hemorrhage. Here we have no serious etiologic factor to cope with which interferes with immediate recovery. The lost blood can be immediately and fully replaced with no untoward result. No reaction whatever follows transfusion in this type of case if the donor is well matched, and the recovery, of course, is immediate. In anemia due to hemorrhage in typhoid fever, gastric ulcer, tuberculosis, chronic ulcerative colitis, or other such diseases, transfusion is doubly indicated because here a patient cannot always cope with his systemic illness unless his blood volume is adequate. In one case of typhoid with secondary anemia due to frequent hemorrhages

the patient had been ill for several months and had suffered three relapses. The day following a large transfusion of blood, which restored the blood volume completely, the temperature came to normal and uneventful convalescence began immediately. In a case of gastric ulcer continued oozing of blood had led to anemia of high grade. There was no tendency for the ulcer to heal nor to stop bleeding. Three transfusion wounds on the arm in which small amounts of blood (about one pint) had been introduced on different occasions, had absolutely failed to heal and lay gaping open. Following the introduction into this patient of 2,500 c.c. of blood at one time hemorrhage from the ulcer ceased, the transfusion wounds healed, and the patient was discharged from the hospital on relatively liberal diet within two weeks. Transfusion is indicated in tuberculosis complicated by anemia and the restoration of a normal blood volume increases the patient's chances of successfully coping with this disease. In two cases of chronic ulcerative colitis complicated by secondary anemia, conditions improved. The primary cause of the anemia, ulcerative colitis, was favorably influenced by the transfusion but was not completely cured.

Chronic Nephritis.—In six cases of chronic interstitial nephritis with hypertension and severe anemia five were benefited and the kidney function improved markedly. In one no marked benefit followed and because of hemoptysis which followed, the original anemic condition was soon re-established.

Care should be used in giving large volumes of blood in kidney and hypertension cases. Here the smaller transfusions would seem preferable.

Hemorrhagic Diathesis.—In hemorrhagic diathesis there exists a double indication for transfusion for in this condition blood volume is restored and frequently further bleeding is stopped. In purpura hemorrhagica of the type attributable to a lack of blood platelets, relief of hemorrhage is immediate and lasts so long as the blood platelets introduced survive. This we have seen repeatedly and immediate relief has invariably occurred. In hemophilia and jaundice, however, relief of bleeding can be hoped for but does not necessarily follow.

Chronic Sepsis.—In secondary anemia due to chronic sepsis a vicious circle is often established which leads steadily downhill. With an inadequate blood volume the patient is frequently unable to cope with sepsis. Sepsis, at the same time, leads to a gradual increase in the severity of the anemia. Transfusion in cases of this type have led to remarkable improvement in several instances, especially in osteomyelitis, chronic infectious arthritis, chronic pelvic inflammatory disease, chronic

furunculosis, sepsis in the urinary tract and sepsis following pregnancy when complicated by marked secondary anemia.

Malignancy.—In the treatment of anemia secondary to malignancy it is necessary to bear in mind that the cause of the anemia may remain. In operable malignancy the restoration of normal blood volume improves the patient's chance of withstanding radical operation and shortens convalescence. Little can be said, however, concerning a reduction in the liability of recurrence.

Debility.—A certain number of debilitated patients have a slight secondary anemia with no apparent adequate cause. Transfusion in patients of this sort usually gives gratifying results. The patients immediately obtain normal color and often maintain it for months or years. With this there is often a marked improvement in general health and strength.

Transfusion in Infancy.—Transfusion in infancy should be discussed in a separate paper because in infancy the problems are quite different from those of adults. Infants stand a large transfusion without ill effect and with practically no reaction. They have markedly less tendency to react than have adults. It is also much easier to obtain suitable donors for infants than it is for adults. The mother's blood is usually suitable if the child is under two or three years of age.

Transfusion Preparatory to Operation.—In surgical cases with anemia, transfusion preparatory to operation increases the patient's chance of withstanding operation and shortens convalescence. In a case of hypernephroma observed by the writer the general condition of the patient was such that a grave prognosis was given by her surgeon. Following transfusion, however, with restoration of a normal blood volume, her condition so improved that operation was performed with seemingly no unusual risk. Convalescence was short and there was never at any time concern regarding the outcome.

PRIMARY ANEMIAS

Pernicious anemias and the leukemias can no longer be looked upon as not amenable to therapy although so far as the writer's observations have gone, an actual cure seems as thoroughly beyond us now as in former years. Transfusion is a valuable aid in the treatment of both diseases if the patients are markedly anemic and in the severer cases without transfusion other curative measures are often of little avail.

Leukemia.—Leukemia is frequently complicated by anemia. This is true of lymphocytic leukemia especially. While this condition yields more readily to irradiation than to other methods of therapy, transfusion stands second

to this if anemia exists in marked grade. In one case of lymphocytic leukemia in which the small lymphocyte count exceeded four hundred thousand—in fact, in blood films lymphocytes seemed almost as numerous as red cells—a transfusion of 1,900 c.c. of blood resulted within five days in a drop of the white count to 28,500 and the patient was brought from a moribund state to one of relatively good health which she maintained until she had another illness which ended fatally. Relief so prompt and marked as this can rarely be expected in the treatment of leukemia. Improvement, however, can be counted on in almost every case if the anemia is marked in grade.

Pernicious Anemia.—Patients with pernicious anemia can be divided in three classes so far as prognosis is concerned. First, those who have severe degeneration in the central nervous system and those whose anemia recurs repeatedly and rapidly after transfusion. In cases of this class the prognosis is grave and treatment of any kind is likely to be a failure. Second, the class of cases which present slight if any evidence of degeneration in the nervous system and who have little tendency to relapse. Patients of this class are likely to do well with any common sense method of therapy. They do excellently following transfusion. Third, those which present no marked degeneration in the brain or cord but have a marked tendency to recurrence. This class includes the majority of cases met with in this district and it is in this class that transfusion is most useful. By its aid patients can be transfused from time to time, if necessary, and can be kept out of bed almost indefinitely. The greatest stumbling block lies in a degeneration in the nervous system which eventually occurs in a large percentage of cases and which transfusion does not prevent.

Pernicious anemia deserves special consideration because of several of its peculiar features. In pernicious anemia of long standing there exists practically always a marked atrophy of the tissues. This seems to be more or less general and involves, among other things, the blood vessels. We have transfused many cases, even when atrophic, giving large volumes of blood, frequently as much as 2,000 to 2,500 c.c. at one time. This would seem theoretically to be a strain on the fatty heart and vessels so profoundly lame as those of pernicious anemia. Surprising as it may seem, we have never as yet observed any untoward effect resulting therefrom. We rather believe, however, that in pernicious anemia it is safer on the whole to give two or three smaller transfusions, say 750 to 1,000 c.c. at about three day intervals rather than one large one. We say this because of the situation above mentioned and also for another important rea-

son. In pernicious anemia there is almost always a scarcity of blood platelets. Following transfusion the platelet count is invariably increased and remains at a higher level for several days. We feel that the tendency to capillary hemorrhage, so characteristic of pernicious anemia, is reduced by the increased number of platelets and that immediately following the transfusion there is an unusual need for this very thing. When the transfusions are given at intervals of three days the platelet count can be kept up at a higher level for a period of six to ten days or longer. During this time there should be a regeneration of the atrophied vessels sufficient to hold safely the increased blood volume.

In pernicious anemia there is a vicious circle which tends to lead steadily downward. On account of the lack of red cells the bone marrow is deprived of an adequate supply of oxygen and nourishment. Surely this circumstance puts it in poor shape to meet the unusual demands for increased activity. With an adequate supply of blood the bone marrow should respond with increased generation of red cells. This, in fact, surely takes place for in the average case the red count remains at a high level for months after a transfusion and this in spite of the fact that the blood cells introduced cannot survive indefinitely. In our series of transfusions in this disease (which now exceeds 300 in number) the blood count has remained up for approximately nine months on an average. The count has rarely returned to its previous low level in less than two months and has in some instances remained at a level of from three and one-half million to four and one-half million for several years.

Aplastic Anemia.—Aplastic anemia is also worthy of special consideration because of one of its rather unusual features, namely, a markedly reduced platelet count. In fact, in this disease the number of blood platelets is often reduced to a point of almost total absence and the patient at such times is invariably subject to purpura hemorrhagica. Transfusion, under these circumstances, relieves not only the anemia but reduces the tendency to bleed. In each of a number of cases which we have observed, the blood platelets introduced survived for a period of about three days and hemorrhage returned on the fifth with almost clock-like regularity. Eventual cure of this condition depends wholly upon etiologic factor and in case this cannot be removed, transfusion is really of little real service.

Chlorosis.—Chlorosis responds so readily to treatment with iron that transfusion is not so strongly indicated as in other types of anemia. However, in the one case which we transfused relief was practically immediate.

SUMMARY AND CONCLUSIONS

From an experience with direct transfusion of blood which during a period of eight years has exceeded four hundred in number, we have been led to conclude that it is the logical method of treating anemia of almost every type, for three reasons: First, it is harmless if the technique is good and the donors are carefully chosen. Second, the result is immediate. Third, the result is certain.

The permanence of the result, of course, depends on the cause of the anemia.

406 Waldheim Bldg.

SYPHILIS IN ORTHOPEDIC SURGERY*

ARCHER O'REILLY, M.D.

ST. LOUIS

Not enough importance is placed on the rôle of syphilis as an etiologic factor in orthopedic conditions in spite of all that has been written on the subject, and I firmly believe that that importance cannot be over-emphasized.

In orthopedic cases, as well as all others, it is essential that the presence of syphilis be recognized, because of its importance in the prognosis and treatment of the disease. Its recognition, however, is not always easy unless one is on the lookout for it. This is strikingly illustrated by some statistics of Roberts, who states that in two hundred and twenty-six cases, which he considered congenital syphilis, the following diagnoses had been made:

Joint tuberculosis.....	81 cases
Osteomyelitis.	14 cases
Torticollis.	5 cases
Myeloma.	12 cases
Tuberculous adenitis.	5 cases
Myositis with sacroiliac strain.	7 cases
Arthritis.	24 cases
Disease of carpus and tarsus.	8 cases
Chronic headache.	16 cases
Osteochondritis of hip.	10 cases
Lateral curvature of spine.	1 case
Lymphangitis	1 case

Practically all the writers on the subject believe that syphilis is much more common than is usually supposed. It is estimated that between ten and twenty-five per cent, of orthopedic cases are syphilitic, and some have even placed the percentage higher. The importance of a correct diagnosis in a class of cases as common as this is obvious. Unfortunately, in joint syphilis, the clinical picture is most uncertain and there is no definite symptom complex. In making a diagnosis special attention must be paid to the following points: History,

physical signs and symptoms, X-ray, Wassermann, and the therapeutic test.

History.—In all cases a very careful history should be made and special attention should be given to the family and past history. In adults one must consider the possibility of either acquired syphilis or a late manifestation of hereditary syphilis. All points that might suggest the possibility of a syphilitic infection, either in the patient or in the parents, should be elicited both by direct and indirect questioning. One should not fail to inquire about the previous health of the parents; the number of miscarriages, if any, should be noted, and the possible cause; the number of still-births is also significant; the number of children dead, if any, and the cause of death; the general health of the living children. A history of chronic sore throat or skin lesion in the parents or the patient should arouse suspicion, as would also the history of nervous disorders in the parents or patient. A direct history of venereal infection is of great value, but a denial of infection does not exclude the possibility of its existence. In many cases a history of syphilis is not obtained, even when the patient is perfectly honest, and does not desire to conceal the truth. Frequently the site of infection is so slight or its location such that it has escaped the patient's attention. The secondaries, if there were any, have also been overlooked by the patient. This fact may be illustrated by a brief summary of a case, which will also illustrate the subtle ways in which joint syphilis may manifest itself.

Case 1. A man, 35, single, was seen because he complained of painful feet. On general examination he seemed normal except for flat feet. There was no history of venereal infection. He was given treatment for his flat feet and was told to return in a week. When he returned his feet were still painful and he also complained of pains in his shoulders, arms and back. Because of the indefinite pains and the failure of improvement in the foot condition a suspicion of syphilis was aroused. The patient was again asked whether he had ever had syphilis or other venereal infection. He repeated his previous denial, evidently quite sincerely and honestly. He was advised to have a Wassermann test. This was reported to be four plus. The patient was astounded, especially as he was to be married in three or four weeks. On his again being questioned, he remembered that about ten or fifteen years before he had had a slight abrasion that he had entirely forgotten. Under the circumstances, he was sent to a dermatologist for treatment. Another Wassermann was made by a different serologist and again the Wassermann report was four plus. Under treatment for the syphilis the foot pains and other symptoms steadily improved.

A history of soft chancre, gonorrhea or even a simple abrasion or cut is suspicious and should lead one to suspect the possibility of syphilis, and to make a thorough investigation.

Physical Signs and Symptoms.—The phys-

*Read before the St. Louis Medical Society, Jan. 30, 1923.

ical signs and symptoms in bone and joint syphilis are rather indefinite and contradictory. For that reason they are not of great value unless supplemented by the other diagnostic points. Pain which is worse at night or not commensurate with the amount of bone or joint involvement is suggestive, as is also pain not affected by motion, and absence of marked limitation of motion. Muscle spasm or atrophy are suggestive of syphilis, also multiple joint lesions. When these symptoms, or others not typical of any other symptom complex are met, they should immediately arouse the suspicion of syphilis.

In congenital syphilis a diagnosis is more readily made on the physical signs than in acquired syphilis. Here, in addition to the actual bone and joint involvement, there are usually other signs of congenital syphilis, which must be carefully sought after. Among these may be mentioned cicatrices about the mouth and anus, snuffles, adenoids, which may at times suggest syphilis, high arched palate, Hutchinson's teeth, nervous symptoms and others.

Painless bilateral effusion of the knee joint is very suggestive of hereditary syphilis.

X-ray.—Periostitis is almost always present and usually involves a number of bones. Osteitis is frequently present. It shows a thickening of the cortex and a blurring of the normal bone shadows. It may cause a bowing of the bone on one side. Gummata show up as a destructive process surrounded by a wall of sclerosis. Osteochondritis begins at the diaphyso-epiphyseal line, usually on the diaphyseal side and may extend to the joint, causing joint destruction. In pure joint syphilis the X-ray may not show any typical signs, but an examination of other bones may clarify the picture by showing typical periostitis.

Wassermann Test.—A positive Wassermann test points strongly to syphilis though there may be a mixed infection, usually tuberculosis, or there may be a joint lesion in addition to syphilis. A negative Wassermann does not exclude syphilis, especially in the congenital type. When negative, a careful search should be made for other signs of syphilis, either in the patient or in the parents. If there is any doubt, a Wassermann should be made on one or both parents.

Therapeutic Test.—When in doubt the therapeutic test should be employed, followed by repeated Wassermann tests.

Joint syphilis may simulate almost any orthopedic condition.

Syphilis and tuberculosis of the joints may easily be confused, not only in the physical findings, but also in the X-ray. Case 2 is interesting, as there was a possibility of con-

fusion between syphilis and tuberculosis, as is shown in the history.

Case 2. Colored woman, 38, married. Family history, good. P. H.: Her general health had not been good; she was sick a good deal, but had had no specific disease; had pleurisy at 30 lasting three days; sick headaches since she was 27—these were worse at night. Night sweats a month before she came to the hospital. Pleural pains for about a month before coming for treatment. Denied venereal infection. Seven years before present time right elbow had become stiff and swollen; recovered in six months. Had seven children; first and seventh living and well; five died young, cause not known except that one died of meningitis. One miscarriage, after first child.

Right elbow became swollen and painful about five months before coming to clinic. Shortly after knees became involved. No other joints affected. Condition gradually became worse.

On examination her right elbow showed a fusiform swelling, not hot. There was about 30 degrees motion in elbow. There was a large epitrochlear gland on inner side. Knees were swollen with considerable fluid, and on entering hospital were flexed at 20 degrees. Left tibia was rough and tender to touch.

The X-ray showed destruction of internal condyle and olecranon. X-ray of knees negative.

The Wassermann was positive.

In this case the history was suggestive of syphilis, also the multiple joint infection and the tibial periostitis. But the appearance of the elbow with a history of night sweats and possibly pleurisy might have suggested tuberculosis. The X-ray of the elbow might also have been mistaken for tuberculosis. There was some question as to diagnosis, and some of the tissue was removed for examination. The report from the pathological laboratory was "Tuberculous Osteomyelitis." Guinea pig inoculation was negative. The patient completely recovered with antisiphilitic treatment.

In another case a white female child aged nine came to the clinic with painful neck and rigid spine. A diagnosis of tuberculosis of spine was made. The Wassermann, however, was positive, and the patient recovered under antisiphilitic treatment.

Syphilis is frequently an important factor in osteoarthritis, either as a direct cause or possibly indirectly as a toxic agent, causing typical joint changes. A very striking example is shown in the following case.

Case 3. N. C., female, white, aged 48, married, general housework. First seen August 31, 1912.

Diagnosis: Atrophic arthritis.

F. H.: Unimportant except that patient was not living with husband, who was unhealthy.

P. H.: Has always been pretty healthy. Had smallpox when twelve, mumps when sixteen. Remittent fever. Twelve years ago had swelling in throat, occasional sore throat. Had no children. No miscarriages. Menstruation regular (twenty-one days). Menopause four years ago. Bowels regular. Has been nervous since menopause. Was general housework girl. Did laundry work for ten years and was waitress for ten years. Has always worked hard. No especial strain on joints. Hot, damp laundries, food at times poor. Habits good.

Present Illness.—Four years ago, after menopause, left hand began to swell over knuckles and was

painful on motion. Six months later, pain suddenly went to left foot and right hip. Then right foot was involved. A year later right knee was involved. Other joints except hands and knees improved. Had fever at time of involvement and lost hair before joints were affected. Has had discharge from nose for last three years. Ears discharging for last six years. Feels well except for swelling in hands and knees.

Physical Examination.—General condition fair, slightly pale. Gums pale, otherwise in good condition. Teeth, good, except for one molar. Lymph nodes, left epitrochlear and inguinal enlarged. Reflexes, pupillary normal. Triceps and knee-jerks increased.

Heart not enlarged, regular, sounds not clear. Slight systolic murmur right apex, transmitted to axilla. Diastolic murmur over aorta. Pulse regular, fair volume.

Back slightly rigid in all directions, no pain or muscular spasm. Both shoulders, feet, hips, right elbow and left knee normal. Color, normal.

Right knee shows a marked fusiform swelling. Knee 15 degrees permanent flexion, motion painful. Passive motion to 90 degrees. Both hands show symmetrical enlargement on back over first phalangeal joints. Motions painful. Slight thickening in left elbow. Motions practically normal. No pain. Right knee, 14½ inches; left knee, 13 inches.

Ear Examination.—Chronic purulent otitis media.

Nose and Throat Examination.—Crushing of mid-meatus left and pharyngeal tonsil.

Gynecological Report.—Chronic urethritis and bartholinitis. Gonococci not found. Symptomatically with atrophic vagina and uterus.

Subsequent History.—Patient was sent to nose and throat clinic and to ear clinic for those conditions, which promptly yielded to treatment. A light brace was applied to right knee. The condition was supposed to have been the result of septic processes in nose and ear. The general treatment consisted in keeping the bowels open and the administration of hexamethylenamine. There was some slight improvement. Two months after coming to clinic, a Wassermann test was made and found positive. The patient was then given potassium iodide and ung. hydrarg. There was considerable improvement but the potassium iodide had to be given up on account of constitutional effect on patient. The administration of mercury was continued with considerable improvement. On November 30, patient reported that she felt much better, could hear and see better. On December 9, 1912, patient was given an intramuscular injection of .9 gram neosalvarsan. The patient was sent home and was not seen for two weeks. Returned without brace, could walk with only slight discomfort. The swelling over phalangeal joints had diminished and hands were more flexible. Knees could be straightened practically to normal and could be flexed at 90 degrees. Patient felt well except for some pain in buttock.

Since then patient has had two more injections of neosalvarsan and at about two weeks intervals, one of .9 gram, other .6 gram. Between injections patient was given hydrarg. bichlorid, gr. 1/25 three times a day. The improvement has been most remarkable. The patient had gained 8 pounds in less than three weeks. The knee is straight and without pain. Motion well beyond a right angle. Measurements of both knees are alike. There is still some thickening over hands as a result of destructive process, but the fingers are perfectly free and motion is normal. The patient is working, the first time in over a year, and reports that she never felt better in her life.

This is an old case, but I believe is most interesting.

The hypertrophic type of arthritis is illustrated by the following:

Case 4. F. H. Female, married, colored. Housework. Diagnosis, hypertrophic arthritis.

F. H.—Unimportant.

P. H.—Does not show any venereal history; otherwise unimportant except that patient sprained left knee 15 years before coming to clinic; not treated. In summer ankles swell during day.

P. I.—Has had pain and stiffness on and off for years in left knee. Now is constant and knee feels weak as if it were going to give way. Can hear knee "crack" when flexed. Has tingling and pin pricking sensation up backs of both legs.

P. E.—Left knee large and hypertrophic. Crepitus on flexion. Large varicosities and edema of ankles.

X-ray Report.—There are marked hypertrophic changes on inner borders of the patella and on the articular surfaces of the tibia and posteriorly on the condyles of the femur. There is atrophy of all bones throughout. The interarticular joint space apparently is slightly diminished.

X-ray Diagnosis.—Hypertrophic arthritis of left knee.

A routine Wassermann was four plus.

Under antisiphilitic treatment the knee symptoms disappeared.

Case 5. J. T. female, married, aged 39, milliner.

Diagnosis.—Osteoarthritis.

F. H.—Father died of blood poisoning, suffered occasionally with rheumatism.

P. H.—Usual diseases of childhood. Frequent attacks of malaria. Pleurisy three years ago. Appendicitis two years ago. Had slight attacks of sore throat. Two children living, always "delicate," two miscarriages. Leukorrhea several years ago.

P. I.—Has had rheumatism for 18 years, first attacks slight, later becoming more severe. For last two years attacks have necessitated patient's going to bed. Joints swell, very painful and are sensitive to pressure. Attacks accompanied by fever, pain and swelling worse in hands and feet. Had severe headaches lasting several days. Worse during the day. Bowels regular.

P. E.—Slight stiffness in both wrists. Fingers on both hands are painful, tender and swollen. Slight limitation of spine on forward bending. Both feet moderately flattened. Treatment, potassium iodide, gr. xii, increase a grain a day. Wassermann positive.

Subsequent History.—One month later, reported that she felt about the same, but had been much better while taking the potassium iodide. Given bichloride 1/25 gr., potassium iodide gr. xv. The patient has been much improved by treatment and is working every day.

This case illustrates the advantages of a Wassermann in case of "rheumatism."

That syphilis may be the cause of intermittent hydrops is suggested by the following case:

Case 6. H. F. male, aged 19, white, single, tin factory. First seen February 3, 1913.

Diagnosis.—Specific arthritis.

F. H.—Mother had no miscarriages or still-born children.

F. H.—Always well, denies gonorrhea or syphilis, no loss of hair. Works in factory where he uses his right leg constantly in shifting levers. Has swelling in joints almost once a year and then gets better.

P. I.—Present trouble for about two weeks. Right knee has been continuously painful. Pain is not severe. Worse during the day.

P. E.—Tonsils large, crypts open. Inguinal glands

enlarged. Right knee slightly swollen. Motions free, little pain on motion. Slight increase in surface temperature. Wassermann strongly positive February 4, 1913.

Subsequent History.—Knee was strapped, patient was given acetylsalicylic acid, gr. v. Was to have reported to clinic to get result of Wassermann, but did not return.

Social Service Report.—This patient is working regularly in a tin factory. Is perfectly well.

The association between syphilis and painful feet is illustrated in Case 1.

These cases, taken more or less at random, will, I think, illustrate the points I want to emphasize: the importance of syphilis in orthopedic conditions, and the fact that it may present itself in many different forms; the importance of making a very careful history, with especial attention to the family and past history; that syphilis should be suspected in all doubtful cases; that a routine Wassermann should be made, and where this is negative should be repeated, and if there is any question the patient should be given a therapeutic test. In many cases I have seen joint lesions with a negative Wassermann show marked improvement under the administration of mercury and potassium iodide.

3534 Washington Ave.

MYRINGOTOMY FROM THE STANDPOINT OF THE PATHOLOGY OF EARLY OTITIS MEDIA*

ARTHUR M. ALDEN, M.D., F.A.C.S.

ST. LOUIS

Myringotomy or incision of the tympanic membrane is a minor surgical procedure too often undertaken without careful consideration being given to the indications or possible end-results. Given the indications, this operation when performed under the proper surgical conditions, by one who is trained in this special field, is devoid of danger and almost without exception successful. However, when unskillfully or carelessly performed the results are often disastrous not only to the hearing but in some cases even to the life of the patient.

Not so many years ago it was the custom to allow the inflamed ear-drum to rupture spontaneously. Experience, however, taught that in acute suppurative otitis media tympanic incision greatly reduced the number of mastoid complications. The pendulum of opinion has swung to the other extreme until nowadays ear drums are often opened on the mere suspicion that there may be pus present or that the ears are the cause of the continued temperature in the absence of other positive findings. Indeed it

is the custom in many ear and pediatric clinics to open "every red ear-drum at once" and unfortunately many postgraduate students in these specialties are going out into practice believing that by adhering firmly to this dictum they are conserving the health and life of their patients.

A short consideration of the mechanics of the middle ear and the pathological changes taking place in early inflammatory processes of this cavity will, I am sure, conclusively demonstrate that such reasoning is wrong and the doctor who practices or teaches such a method must assume the responsibility for the often pathetic outcome.

The middle ear is a closed cavity separated from the external auditory canal on one side by the flexible tympanic membrane and connected antero-inferiorly with the outer world by means of the Eustachian tube. This tube varies in length from about three-fourths of an inch in the newborn baby to about one and one-half inches in the adult. Its framework is composed of connective tissue and cartilage, arranged in such a manner that movements of the pharyngeal muscles, such as the act of swallowing, cause it to open temporarily. This intermittent opening of the tube allows it to perform its most important function, that of maintaining an air-pressure equilibrium on either side of the tympanum. The Eustachian tube is lined with columnar ciliated epithelium upon a basement membrane which carries the blood and nerve supply. At the pharyngeal end of the tube there are two layers of these columnar cells, superimposed one upon the other. Interspersed among these cells are many mucous cells. The middle ear cavity is for the most part lined with a single layer of these ciliated cells. The pharyngeal orifice of the Eustachian tube is situated in the lateral wall of the pharyngeal vault in a small vertical depression which is called Rosenmueller's fossa.

Practically all suppurative processes of the middle ear arise as complications of acute or chronic inflammatory conditions of the upper respiratory tract, more particularly in the pharyngeal vault, and the path of infection from the pharynx to the ear is always the same, through the Eustachian tube.

When the mucosa lining the pharyngeal end of the Eustachian tube becomes inflamed, the cell reaction is the same here as elsewhere in the body, congestion and swelling. If this swelling is sufficient to prevent the opening of the tube during swallowing or mastication the tube fails to perform its function and there is a disturbed air pressure equilibrium in the auditory apparatus. The oxygen in the middle ear is soon absorbed with the result that the pressure is less in the middle ear than on the

*Read before the St. Louis Pediatric Society, February 2, 1923.

outside of the tympanic membrane. This causes the drum to be forced inward by the pressure of fifteen pounds per square inch in the external canal. In this condition the handle of the malleus appears to be foreshortened and the prominence of the short process of the malleus is accentuated. This negative pressure in the middle ear causes a suction-like action on the blood vessels supplying the lining mucosa and tympanum and they rapidly become engorged and swollen. This is perceptible on the external surface of the drum and is especially noticeable in the larger vessels along the handle of the malleus and two lateral ligaments. The radiating capillaries on the drum surface always, though usually to a lesser extent, show the same phenomenon. This is the red, retracted drum. At the same time the fluid contents of these small vessels begin to pass through the walls and collect in the floor of the middle ear cavity as a transudate. This is the first stage of otitis media and has been well termed the negative pressure stage.

In this stage the middle ear and its contents are sterile and incision of the drum at this time is only to invite infection from the outside. Adrenalin applied to the pharyngeal end of the tube, an ice bag to the external ear to relieve congestion, and adequate medication to the inflamed pharyngeal vault will often cause the tube to open with prompt recession of the symptoms. All treatment and manipulation should be carried out in such a manner as to produce no increased irritation to the already swollen and inflamed tissues.

The pain in this stage is usually described by the patient as a "stopped up feeling" or a "drawing sensation." Rarely is it of a throbbing type. The hearing is, as a rule, only slightly reduced. Temperature due to the ear at this stage is rare in adults though children may show an elevation due to the concurrent nasopharyngeal disease; leucocytosis, if present, is not due to the ear condition. The duration of this stage is variable, being dependent usually upon the relative virulence of the infection. Where the streptococcus is the causative agent the entire process, from its incipiency to a fully developed otitis media with pus in the middle ear and a red bulging drum, may require only a few hours. However, when the infecting organism is of a lower order of virulence this first stage may last for as long as twelve to twenty-four hours, thus allowing time for adequate treatment.

The transition from the first stage to the second stage is a gradual one and no sharp line of demarcation can be drawn between them. The process is progressive and the symptoms, objective and subjective, are dependent upon the increase in amount and the change in character of the transudate in the middle ear. As

this fluid increases in quantity the air pressure in the ear changes from negative to positive, the tympanic membrane is gradually forced outward, the handle of the malleus is pushed forward, the prominence of the short process of the malleus is diminished and finally lost and the drum bulges into the external auditory canal. At the same time the transudate in the ear becomes infected and changes from serum into pus, the return blood supply is shut off by pressure, the small vessels become thrombotic and there is often ecchymosis into the mucosa of the ear cavity and the drum. The character of the pain becomes lancinating, due to the pressure upon the nerve endings of the middle ear mucosa and there is usually more or less elevation in temperature. Leucocytosis is the rule varying from 7,000 to 15,000 and the percentage of polynuclears is a fair index to the virulence of the infection. This is the second stage of acute suppurative otitis media and it is now that incision of the drum is indicated.

Certain ears in which there have been previous suppurative processes may present an objective picture in this second stage that differs from the typical one described above. These differences depend upon changes that have taken place in the drum and middle ear structures. The bulge may be less prominent, due to a greatly thickened drum membrane, or it may be limited to certain areas of the drum by adhesive processes between its posterior surface and the promontory. A history of previous ear disease should, however, serve to put the doctor on guard against what might otherwise be a misleading picture. When all is said, it is a case for expert opinion and this only adds force to the statement that the final judgment in these cases should be made by one who is thoroughly at home in this particular field, and this is rarely true of the internist or the pediatrician.

There is one exception to the dictum that a red bulging drum should be incised. This is in a condition which may be called acute interstitial myringitis. Here the drum presents a dark red, circumscribed bulge, usually in the inferior half, and the upper landmarks are often still present. This change consists in a separation of the layers of the drum with the formation of a bleb on the external surface of the drum, the contents of which are usually hemorrhagic. This phenomenon is, as a rule, a complication of some very acute upper respiratory tract infection, more particularly influenza, though little is known of the mechanics leading to its production. The pathology here is limited to the drum itself, the middle ear cavity remaining uninvolved. The treatment should consist in puncture of the external bleb, care being taken not to disturb the posterior

surface of the drum. This procedure usually results in a rapid cure.

In earlier years the surgical opening of the tympanic membrane was called paracentesis, and consisted in a puncture of the bulging surface of the drum which allowed the pent-up fluid to escape. This term paracentesis with all that it signifies has unfortunately persisted in medical literature and practice. When a tympanum is to be opened it should be done by a carefully placed incision performed under conditions favorable to asepsis. In order that this may be accomplished, perfect control of the patient during the operation is of the utmost importance, for a sudden movement on the part of the patient while the knife is in the middle ear might result in displacement of the footplate of the stapes or even perforation of the promontory. In all patients except very young children, nitrous oxide is the anesthetic of choice. All forms of local anesthesia in my hands have been disappointing.

A drum that has been properly incised rarely needs re-incision. This subject has been well presented by Kopetzky and Schwartz:¹

"The writers contended that paracentesis or repeated paracentesis could not prevent or cure operative mastoiditis. Only in young infants could re-incision of the drum-head be logically employed, and this because of the rudimentary and undeveloped mastoid process. Bearing in mind this one exception, their contention found further support in a study of the pathology of mastoiditis, the mode of infection and the clinical course of acute purulent otitis media. Did one but visualize the stages and evolution of the pathological lesion in every case as it was presented to him, the chances of misjudging the necessity of repeating incision of the drum-head would be lessened. Too often the clinician does not do this. It was of no avail to repeatedly incise a drum-head to evacuate pus and to attempt to prevent an operation on the mastoid process in the type of case whose clinical history, bacterial flora and general aspect were such that one was reasonably certain that it fell within the group-type termed 'hemorrhagic mastoiditis.' In this type the infection was not walled off as in the coalescent type, but the dilated blood vessels rapidly carried the infecting organisms throughout the mastoid and, unless the process was promptly and completely checked, even further, into the sinus, meninges and brain. This form had been rightly called the dangerous form of mastoiditis, and its prompt recognition was imperative for the preservation of the patient's life. Yet, strange as it might seem, it was this type that was most frequently overlooked by the attending physician. The patient com-

plained of pain in the ear, and there was a high temperature, 103 degrees or 104 degrees. Paracentesis was promptly and properly performed, a free incision being made into the membrana tympani. Much to the surprise of the attendants on the case, there was only a slight seropurulent discharge from the middle ear, the temperature had again gone up and the patient was distinctly ill. There might be slight mastoid tenderness, not sufficient to occasion alarm. Another paracentesis was performed, then perhaps a day later, another. In the meantime the mastoid infection had continued unchecked, and complications with symptoms referable to the sinus and meninges put in appearance. . . . A slight discharge from an incision of the membrana tympani might mean not an insufficient opening, but a virulent infection. . . . When, after the delay occasioned by the attempts to cure the mastoid disease by re-incisions, the patient finally came to the operation, the disease might be far advanced, with marked destruction of the mastoid structure, and the drum might be shredded or practically destroyed. . . . A large number of their cases of chronic suppurative otitis media traced their origin to an acute attack where repeated paracenteses were performed. Many were now in such a condition that they could not be cleared without the radical operation. There were others where the drum membrane had healed and the middle ear was dry. The multiple scars were frequently adherent to the middle ear structures and there was loss of mobility of the ossicles, resulting in marked impairment of hearing and tinnitus."

In the light of these facts when one visualizes the stages of this disease in its evolution from a simple irritation at the pharyngeal end of the Eustachian tube to a full-blown suppurative process, certain conclusions seem to be warranted.

Neither the color of the drum nor the configuration of its external surface should be used alone as an index of the stage of the ear disease, but taken together and in conjunction with other symptoms, temperature, character of the pain, leucocytosis, etc., a decision for or against incision based upon sound scientific reasoning should not be difficult.

Perfect control of the patient obtainable only by some form of general narcosis is essential to proper performance of the operation.

Paracentesis should not be done except in acute interstitial myringitis; all other openings should be incisions, not stabs.

Re-incision of a properly opened drum membrane is rarely necessary. If the temperature and other symptoms persist after an adequate primary opening has been made, a careful

¹ Kopetzky and Schwartz, *The Laryngoscope*, January, 1922, p. 61.

scrutiny of the ears for possible mastoiditis or intracranial complications is imperative.

3858 Westminster Place.

THE PATHOLOGY IN CASES OF APPENDICITIS WITH DIARRHEA. REPORT OF CASES

JOHN G. SHELDON, M.D.,

AND

EDWARD P. HELLER, M.D.

KANSAS CITY, MO.

The diagnosis and treatment of appendicitis have become so commonplace in the daily routine of the average surgical clinic that little attention is any longer paid to the details of the expected pathology. The preoperative diagnosis is put down as acute, subacute, chronic or relapsing appendicitis, and further ventures in the realm of diagnosis are thought unnecessary. In reality they are unnecessary so far as affecting the routine of operation is concerned. However, the more specific we become in our diagnoses the better are we training ourselves to observe pathology as it is revealed to us in the operating room or in the dead-house.

The purpose of this paper is to draw attention to a symptom-complex which is, in our experience, almost pathognomonic of a chronically diseased appendix adherent to the terminal ileum. A recent series of 400 appendectomies was carefully studied for this type of pathology. In four cases of the series such pathology was found. Two of these had been definitely diagnosed before operation, and two had been tentatively so diagnosed. It is possible that the condition occurred in one or two additional cases and escaped the records, or that the adhesions were so slight as to have been broken in delivering the cecum. From an experience of over twenty years (J. G. S.) and from a study of the present series we can say that this pathology may be expected in about one per cent. of cases of appendicitis of all types.

Murphy,¹ Deaver and others have laid stress on the frequency of diarrhea in chronic tuberculosis of the appendix and its special diagnostic value. Except to state that diarrhea may be present in chronic non-tuberculous appendicitis, little is said in the standard textbooks on appendicitis. The two cases which were definitely diagnosed prior to operation will be delineated in order to bring out the essential points in the histories of these cases, for it is in a carefully taken history that one must put chief reliance in diagnosis.

HISTORY OF CASES

Case I. Mr. J. R. C., age 40, railroad brakeman. Admitted to the Vineyard Park Hospital complaining of pain in the right lower abdominal quadrant. He had had periodic attacks of pain in the right lower abdomen with generalized colic, for the past four years. The initial attack followed immediately after an attack of influenza, and was accompanied by a "gathering" in his right side which his local doctor "scattered." Has been subject to periodic diarrhea without apparent cause since then and has also had considerable gas in the lower bowel. He has had a slight indigestion. Has occasional sore throat and "colds." No genito-urinary cardiovascular or nervous symptoms.

The previous medical history was negative except for the usual childhood diseases, one attack of jaundice, and occasional "biliousness."

Physical examination revealed a muscular, middle-aged man in no particular distress. Head was negative except for chronic nasopharyngitis and a pair of buried infected tonsils. Neck and chest were surgically negative. Abdomen was flat. Musculature good. No prominences seen. No masses palpated. Marked tenderness over McBurney's point and just below the umbilicus. Remainder of abdomen and the extremities were negative. The blood count and urinalysis revealed nothing of note.

The preoperative diagnosis was entered as follows:

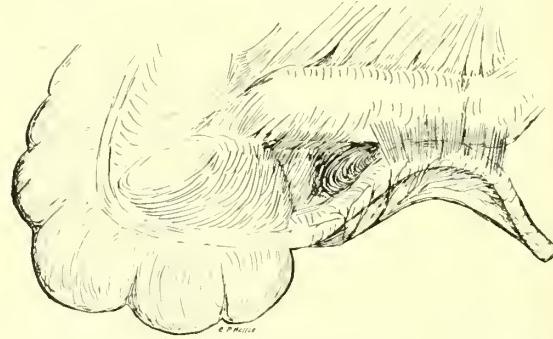


Fig. 1. Case 1. Showing pathology found in a typical case of chronic appendicitis with adhesion to terminal ileum.

Chronic appendicitis (appendix adherent to terminal ileum), chronic septic tonsillitis (tonsils foci).

Under ether anesthesia, the abdomen was opened through an oblique incision in the right lower quadrant. The cecum was delivered and a long, injected, chronically diseased appendix densely adherent to the terminal ileum, was exposed. (See Fig. 1.) The appendix was freed from the ileum, and removed in the usual manner. The raw surface of the ileum was touched with gauze moist with compound tincture of benzoin, and the slight tendency to ooze was overcome. On account of the peritoneal adhesions and the chronic localized peritonitis, a rubber drain was inserted for safety's sake. The table was placed in the Trendelenburg position, and the tonsils were removed by the Sluder method.

Progress was uneventful. The tube was removed at the end of 24 hours. Relief of all the symptoms resulted from the operation.

Case II. Miss E. J., age 17, school girl. Admitted to the Vineyard Park Hospital complaining of pain and soreness in the right lower abdomen. For a number of years has had soreness in the right lower abdomen with intermittent attacks of severe pain, with nausea and vomiting, during which she is confined to bed. Onset of menses relieves her sensitivity in the right side. Has had a tendency to diarrhea on the least provocation ever since she was a

baby, and has always had to be kept under strict supervision. No respiratory, cardiovascular, genito-urinary or nervous symptoms.

The previous history was negative except for the usual childhood diseases, and tonsillectomy one year prior to admission; had had considerable trouble with her throat. The menstrual history was carefully inquired into but was practically negative. (As stated, onset of menses had a tendency to relieve temporarily the sensitiveness in her right lower abdomen.) The family history was negative for tuberculosis. The social history was negative.

Physical examination disclosed the following: A fairly well-nourished, high-strung young girl. Head, neck and chest were surgically negative. The abdomen was flat. There were no prominences. No masses palpable. Extreme sensitiveness in right lower quadrant. Pelvic examination was negative.



Fig. 2. Case 2. Showing condition found at operation—adhesions less extensive than in Case 1.

Extremities were negative. Blood, stool and urine were negative.

The preoperative diagnosis was entered as chronic (recurring) appendicitis (appendix adherent to the terminal ileum).

Operation: Lower outer right rectus incision. Cecum delivered and a small, chronically diseased (obliterated) appendix was removed in the usual manner after separating the dense adhesions between it and the terminal ileum. The condition as seen at operation is shown in Fig. 2. Progress was uneventful, and complete relief from symptoms resulted. (In this case, as in others of this series, search was made for evidences of tuberculosis of the cecum, ileum, appendix and peritonium, but none existed.)

DISCUSSION

Adhesions distal to the ileocecal valve and pericolic membranes (Jackson's membranes) are not included in this study. Harvey² found pericolic bands in 15-20 per cent. of a large series of infants studied. This certainly adds weight to the theory of their congenital origin. Furthermore, diarrhea is uncommon in these cases, Taylor³ reporting an intermittent diarrhea in about 10 per cent. of cases, with usually an associated colitis. In the cases we have studied colitis could be very definitely ruled out. There was a history of a pre-existing inflammatory condition, as a rule, and at least two were the result of foci of infection in the throat. In the cases of "anomalous abdominal

membranes" reported by Taylor, 10 per cent. had foci of infection in the mouth and tonsils. Elimination of these foci caused no improvement. This is not surprising inasmuch as many of the membranes were probably congenital and bore no relation to foci of infection, and in the second place were producing symptoms purely of a mechanical nature.

Our object in digressing somewhat, in order to review similar pathology in the right iliac fossa distal to the ileocecal valve, is to point out the primarily inflammatory nature of practically all cases where the appendix is adherent to the terminal ileum. There is no suggestion of a congenital anomaly. In the light of our present knowledge of focal infection and its relation to intra-abdominal pathology, it is not inconsistent to assign these cases to that category. Especially is this true since the serosa is more markedly affected than the mucosa, the chief pathology being a periappendicitis, a localized, chronic, non-tuberculous peritonitis. The peri-ileitis, which varies with the extent of the attachment of the appendix to the ileum, results in a tendency to rush peristalsis and likewise incompetency of the ileocecal valve. Diarrhea is the natural result. Relief of the diarrhea and pain in the right iliac fossa after removal of the appendix is sufficient proof of this contention. Other things being equal, we can expect the symptoms to vary in intensity in direct proportion to the degree and duration of the appendicitis, and the extent of the adhesions to the ileum.

In view of the fact that diarrhea is so frequent in cases of tuberculous appendicitis and ileocolitis, care should be taken to rule out these conditions before venturing a diagnosis. In malignant disease of the cecum there is frequently constipation followed by, or alternating with, diarrhea. The X-ray should be used in all cases where there is the least doubt as to the diagnosis. As these conditions are all more or less chronic, the leukocyte count is of little value. The presence of a lymphocytosis in conjunction with other symptoms and signs may sustain a diagnosis of tuberculous appendicitis in contradistinction to chronic appendix adherent to the terminal ileum.

As we have before stated, chief reliance must be placed in the history of the individual case and a careful physical examination. Examination of the stool reveals nothing abnormal, the blood count is seldom significant, and only rarely can we hope to definitely show the pathology by the aid of the roentgen ray.

SUMMARY AND CONCLUSIONS

1. In about one per cent. of all cases we may expect to find the appendix densely adherent to the terminal ileum.

2. The diagnosis can be made before operation, as a rule, by careful inquiry into the history of the case, and by ruling out tuberculosis of the bowel.

3. The chief symptoms are: recurring attacks of pain in the lower right abdominal quadrant, either accompanied by, or followed by, diarrhea; a tendency to diarrhea on the least provocation. There is usually a history of one or more disabling illnesses due to gastric upset, abdominal pain, and some temperature, followed by an interval of sensitiveness in the right iliac fossa and an associated mild dyspepsia.

4. There are usually foci of infection present, but we have not studied in detail enough cases of this type to feel justified in saying that the peritoneal lesion is secondary to the focus or foci. From long observation of focal infection and its relation to intra-abdominal disease, we should say there is a very definite relation. It has been our custom, therefore, to remove the foci either at the same time as the appendectomy, or soon after. The foci of infection most frequently found are the tonsils, occasionally the teeth and other regions.

5. We believe, in view of the foregoing, that the local pathology originates in the walls of the appendix, and that the serosa becomes involved early. In an effort to confine the infection to as small an area as possible, nature throws out lymph and phagocytes. This exudate, under favorable conditions, causes adhesions to form with the terminal ileum. The adhesions become vascularized and become more and more dense. This, in turn, produces an interference with the functions of both ileum and appendix, with the resulting symptoms. The mucosa of both the ileum and the appendix is affected late, or not at all. When affected, it is because of interference with function due to traction or stasis and interruption of the blood supply.

6. The X-ray may occasionally help in establishing a diagnosis.

7. Removal of the appendix and restoring the ileum to its normal position results in cure of the patient.

25th and Locust Sts.

REFERENCES

1. Murphy, J. B., Keen's Surgery, Vol. IV, p. 763.
2. Harvey, S. C., Annals of Surgery, 1918, LXVII, No. 6, p. 641.
3. Taylor, A. S., Annals of Surgery, LXXV, No. 5, p. 513-573.

THE STATUS OF THE NEGATIVE WASSERMANN REACTION.—A negative Wassermann reaction, in the opinion of Robert A. Kilduffe, Pittsburgh (*Journal A. M. A.*, December 30, 1922), is of value only when intelligently interpreted in conjunction with the other findings; a single negative reaction is of little value in the presence of suggestive clinical findings; and as evidence of cure, a single negative reaction is worthless.

INDUSTRIAL LEAD POISONING.—Marvin D. Shie, Lakewood, Ohio (*Journal A. M. A.*, March 26, 1921), asserts that certain signs and symptoms of plumbism have been given somewhat more importance as diagnostic points than they deserve. These are anemia, basophilic degeneration of the red cells, hypertension and constipation. Pronounced anemia is present in only relatively few cases; in many severe cases there is no anemia whatever. The pallor that is usually present is, therefore, due to some other cause—possibly a constriction of the peripheral blood vessels. Basophilic degeneration of the red cells is rare in chronic cases, and its value as a diagnostic point, even in acute cases, has probably been overrated. The presence of hypertension is extremely variable. The cause of this variance is unknown; however, the difference in the form of the lead to which the different groups are exposed may have something to do with it. Hypertonus is nearly always present during attacks of colic. Although constipation is usual, it is not invariably present. The assumption, therefore, that a patient who is not constipated does not have lead poisoning is fallacious. A point of diagnostic value which appears to have escaped recognition, except by Hayhurst, is the presence of mononucleosis in chronic cases. This is almost invariably present. The presence of a lead lime is also extremely variable. In the treatment of plumbism, prophylaxis is of much more importance than the curative treatment. If the cause of the poisoning is removed, the prognosis, except in a few cases, is good even without medical treatment. If, however, the lead continues to exert its deleterious effects through small, steady doses, the case steadily progresses, finally terminating in some form of paralysis or in some of the common degenerative diseases. As a rule, lead poisoning is a disabling rather than a fatal disease, although in chronic cases it undoubtedly hastens death.

DISORDERS OF PITUITARY GLAND.—Harvey Cushing, Boston, used this article (*Journal A. M. A.*, June 18, 1921) as the presidential address which he delivered before the Association for the Study of Internal Secretions, Boston, June 6, 1921. His concluding remarks are: If this society wishes to play a useful role in furthering advances in endocrinology, it must, so far as possible, through the pages of its journal, keep such an exact almanac that those pursuing the subject in the proper spirit may be able to avoid unfavorable winds, currents and counter currents. It must discountenance the exploitation of the few discoveries which have already been made by those who recklessly under full sail plow through a fog bank of therapeutics, their horns tooting. Surely nothing will discredit the subject in which we have a common interest so effectively as pseudoscientific reports which find their way from the medical press into advertising leaflets, where cleverly intermixed with abstracts from researches of actual value the administration of pluriglandular compounds is promiscuously advocated for a multitude of symptoms, real and fictitious. Endocrinology as a special subject, if it wishes to survive and come to be a factor in medical practice, must look out for the character of its clinical advance agents lest it come to be utterly discredited.

AN OPERATION FOR INGROWING TOE NAILS. The operation described by Grover C. Ney, Baltimore (*Journal A. M. A.*, Feb. 10, 1923), is performed solely on the soft parts, and the nail is not disturbed. In seventy-five cases, there has been no recurrence. It is a flap operation which is painless, and the patients do not suffer postoperatively.

**THE JOURNAL
OF THE
Missouri State Medical Association**

MAY, 1923.

EDITORIALS

RECENT ADVANCES IN CARDIAC SURGERY

At a recent meeting of the Washington University Meical Society, St. Louis, Dr. Evarts A. Graham, in charge of the Department of Surgery in Washington University, announced the results of experiments undertaken in his department to determine the practicability of performing certain operations on the valves of the heart. The experiments were conducted by Dr. Duff S. Allen, who devised an instrument called the endocardioscope, by the use of which he was enabled not only to see but also to operate on the valves of the heart. The experiments, carefully checked and controlled, were performed on animals. They demonstrated not only the practicability of the endocardioscope but also the feasibility of incising the valves of the heart as might be indicated in mitral stenosis.

It is only within recent years that the heart has been considered an organ permitting of surgical interference. As early as 1867, G. Fisher, in a study of 452 cases of cardiac injury, showed that wounds of the heart were not necessarily fatal and that from seven to ten per cent. recovered. In 1887 Dr. Harvey Ried, of Cincinnati, sutured a wound of the pericardium with recovery, and in 1891 Dalton of St. Louis performed a similar operation successfully. Farina, of Rome, in 1896, was the first to operate successfully on the human heart and thus demonstrated that this vital organ was amenable to surgical treatment. In this country, in 1901, G. T. Vaughan was the first to suture the heart, and in the same year, at the St. Louis City Hospital, H. L. Nietert had a case in which he successfully sutured a wound of the heart. The list of surgical operations on the heart has been increased year by year and up to the present time it must embrace some 300 cases. The operations, however, have been confined almost solely to the repair of gunshot and stab wounds.

Having in mind surgery of the valves of the heart, Alexis Carrel, in 1914, experimenting on animals, succeeded in performing operations on the valves of the heart by clamping or compressing the large vessels at the base of

the heart. However, the element of time is such a great factor, and the danger of the operation so great, that operations of this type have not been applied to the human heart. The only recorded and authentic case of operation on the human heart for mitral stenosis, as reported by Dr. Graham, was performed by Tuffier, of France, in 1902 upon a young physician who suffered so greatly from the effects of mitral stenosis that he recommended stretching of the mitral orifice, and prevailed upon Dr. Tuffier to carry out the operation. This was successfully performed by dilating the mitral orifice with the finger. The patient's condition was greatly improved and for the past twenty years he has enjoyed comparative comfort, although a recurrence of the trouble seems imminent.

The principle upon which Dr. Allen's instrument is constructed is based on the observation that an object, such as an organ or tissue of the body in an opaque fluid medium, becomes visible when in contact with a glass surface which is exposed to the view of the observer. The endocardioscope consists of a hollow metal tube about the size of a fountain pen, closed at one end by a piece of glass, with a straight groove across the center. The groove or slit in the glass conceals the small blade of a right-angled knife, the thin, flat handle of which passes along the outside of the tube. Illumination is effected as in the ordinary endoscope. The instrument is inserted into one of the cavities of the heart, preferably the auricle, hemorrhage being prevented by use of a purse-string suture. When the window or glass end is in contact with the heart valve, the latter becomes visible; and when the knife blade, having been inserted behind the valve flap, is drawn into the groove, incision of the valve leaflet is effected. The entire procedure is controlled by the eye of the operator. Operations of this type upon animals have been successful and conclusive but they have not been undertaken on the human subject.

In commenting upon Dr. Allen's most interesting experiments, Dr. Walter C. G. Kirchner, who has successfully operated on the human heart and has had intimate knowledge and experience with five cases of suture of wounds of the heart, voiced the opinion that Dr. Allen's work has furnished a definite advance in the field of cardiac surgery; that the instrument was practicable; and that, as experience in cardiac surgery is accumulated and correlated, operations on the valves of the heart will be performed when the indications are definite and when some promise of relief may be hoped for in a disease which is not only fatal but also extremely distressing to the patient.

JOPLIN IS EXPECTING YOU

We look forward to one of the best meetings in our history when the 66th Annual Session begins its work at Joplin, May 8. Every member who can possibly arrange to leave his practice for the three days of the meeting should plan to be at Joplin and enjoy during that brief session the hospitality of the members in Jasper County. Not only will you be delighted with the series of entertainments our hosts have prepared for your benefit, but you will find that the program committee has arranged the scientific work in such fashion that you may partake of the spirit of the occasion without the guilty feeling of deserting the sessions devoted to the reading and discussing of papers. These papers happily promise to be of that highly desirable nature which not only tells us of progress that is being made in various directions, but carry a message of practicality that all may receive benefit. An important phase of one session will be the discussion of legislative matters, a feature of our work that should arouse every member, because every member has an influence in legislative matters that is his right and duty, and ought to be his pleasure, to exercise.

On another page we publish the scientific program, and in the advertising department we have inserted a colored page, prepared by the members of the Jasper County Medical Society, presenting the daily program in detail. You will see in this that the Joplin Session will mark the inauguration of an event that will appeal to all members young and old, and be a source of considerable rivalry for honors in the ancient game of golf. The winner will be presented with a cup which he will hold until the next champion of the Missouri State Medical Association outmaneuvers him.

All meetings will be held in the beautiful, new, luxuriously furnished Scottish Rite Cathedral. This is really a show place and every member will be delighted with the beauty of its construction, the chased and artistic decorations, and the conveniences for conducting an assemblage such as ours. It is the first time the Cathedral has been loaned to an outside organization.

The House of Delegates will meet in the class room next to the auditorium, the scientific sessions being held in the latter room. The registration bureau and the exhibits will be placed in the basement, where one of the entertainments, the supper and cabaret, will be held.

Bring the ladies.

EXAMINATION OF BLIND PENSION APPLICANTS UNDER 1923 LAW

The act providing pensions for deserving blind individuals in Missouri has been much changed by the recent legislature. The present law is a great improvement over that of two years ago. Its excellence lies not so much in actual changes made in individual provisions as in its clear and just definition of many essential factors which previously were either left out entirely or touched on but in an indefinite way.

The greatest point of difference between the two laws is in the visual limit. In the act of two years ago the maximum vision allowable was 20,450, whereas it has now been reduced to light perception only. This, of course, is a very drastic change but would certainly seem to be justified by the circumstances. About twice as many blind persons are now on the roll as can be paid from the state funds existing for that purpose.

It was also provided definitely that all blind persons must submit to appropriate treatment or operation where such was indicated or forfeit their rights to the pension. This important point was entirely neglected in the law of 1921.

The oculist examining applicants is now expected to pass on their physical and mental conditions and to determine to the best of his ability whether they can engage in some useful occupation or take up vocational training.

The medical examination of applicants for this pension, the law states, is to be made by competent oculists, approved by the Missouri Commission for the Blind. This commission, during the last five years, has been aided in its work of prevention of blindness by a consulting staff of oculists. The present consulting staff consists of the remaining members of the original corps of seventy-one physicians to which has been added in the last two years all eye specialists, members of the American Medical Association who hold a certificate from the American Board for Ophthalmic Examinations or who are members of the American Ophthalmological Society, the American Academy of Ophthalmology and Oto-Laryngology or who are members as ophthalmologists of the American College of Surgeons. This is setting a high standard but in what other way than by taking those who fulfill these requirements is it possible to include only those of unquestioned competency?

There are undoubtedly thus excluded some eye specialists practicing in Missouri, whose abilities are quite as high as any of those now on this consulting staff. On consideration, however, such persons will clearly see that it is only by meeting some standard requirement that their high professional capacity can be

gauged and known outside their communities and circle of colleagues.

Is there any reason why these specialists should not take these examinations? There is not the slightest doubt that many more oculists in Missouri could pass this examination, if they would but take it. How splendid a standing in ophthalmology our state would obtain and be known all over the country, if many more physicians practicing eye work would take this examination. As reported last month¹ in these pages there have been but twenty physicians take this examination out of one hundred and eighty practicing ophthalmology in Missouri.

The consulting staff of the Missouri Commission for the Blind now includes ninety-eight eye specialists all of whom are members of the American Medical Association. Seventy-five per cent. of this number, however, are located in St. Louis, Kansas City, St. Joseph and Springfield. The entire number resides in but eighteen out of one hundred and fourteen counties of the state, in addition to the City of St. Louis.

Two years ago when the same state of affairs prevailed with a limited number of accredited examiners, and those concentrated in a few counties, there soon arose a great deal of complaint from many of the blind living far away from an examiner. Many were compelled to wait for months without examination. On this account general physicians were given the right at a special session of the legislature in July, 1921, to examine applicants for the blind pension. The members of the consulting staff of the Commission for the Blind cannot afford to let this happen again: this is our work and we cannot expect others to do it. It is a public duty, something no one can properly do but ourselves.

Counties where there are no accredited examiners must be visited by the nearest physician belonging to the consulting staff who shall examine their applicants for the pension. Notice will be given to each blind individual in such county to appear at the county seat at some day or days that the examiner shall choose. The expenses of the examiner for such a trip are to be guaranteed as well as a fee of five dollars for each examination. The present law specifies that the Missouri Commission for the Blind shall advance money to pay such expense and fee, which shall be returned to them from the applicant's pension money.

It is also proposed that the visiting oculist could do some work in the prevention of blindness by previously getting in touch with the physicians of standing in the county he visits. That would depend on the physicians of the

county visited and all movements in this direction will be carried on with the sanction of the Missouri State Medical Association and under the direction of the state board of health. The physicians of the county visited might use such an accredited examiner as a consultant for their eye cases. Where there is no eye specialist near, the general physician himself is compelled to treat many eye cases who cannot afford to go long distances to an oculist.

In this connection Dr. E. P. North, President of the State Board of Health, has authorized the publication of the board's present plans in the prevention of blindness. It is fortunate that we have a very competent eye specialist at the head of the state board of health just at this time when we are all coming to realize how much preventable blindness exists in Missouri. On the latter account the state board of health this year asked for and was granted by the Legislature an extra appropriation of money for the prevention of blindness. With this amount to which has been promised an equal sum from the Rockefeller Foundation, the board of health plans to establish an eye hospital at Rolla, putting in charge physicians of the United States Public Health Service. Field agents scattered over the state will pick out suitable cases and refer them to this hospital. Oculists of the consulting staff of the commission could and in fact will be assisting considerably in this work when they examine applicants and fill out their papers.

Any physician in the state having eye cases on whom he would like consultation may write to the Secretary of the Missouri State Medical Association. Such physician can then be notified when a specialist will visit his locality.

BRING YOUR GOLF CLUBS TO JOPLIN

The qualifying round of the golf tournament to be held for members of the State Medical Association during the annual meeting at Joplin, May 8th to 10th, will be played on the morning of the 9th. Each contesting member must hand in his best medal score made on that day, the twenty lowest being the selection for the final round on the 10th. The winner of the play on the 10th will wear the champion's laurels for 1923-24.

Registration will be in order of arrival of members at the Conner Hotel at which time arrangements will be made for a conveyance to and from the golf course. Luncheon will be served at the club house on both days. It has been decided that only those qualifying on the 9th will be allowed to play on the 10th.

It has also been arranged that teams of four players from St. Louis, Kansas City, St. Jo-

seph, Springfield, Jefferson City and Joplin shall compete for a prize for low combined medal score.

Mr. Joseph E. Garm, who has had five years' experience in handling handicap matches for the Tri-State Association, and Major W. L. Chambers, late of the British Army and an Old-Country golfer, will assist in the handling of the temperamental athletes who will participate in this affair of honor.

ST. LOUIS MEDICAL SOCIETY OPENS SECOND CAMPAIGN IN AID OF CRIPPLED CHILDREN

The opening of the second campaign to give aid to the crippled children of the state and its surrounding territory by the St. Louis Medical Society advances the profession just one step higher on the ladder leading to the ultimate goal of all mankind, that of making the world a better place to live in.

The community owes a duty to the crippled child which it can never fully discharge. Its one means of discharging this duty in the mitigation of their condition is the physician. Then upon him falls the responsibility of alleviating as much as possible the pain and suffering of this group. Cognizant of this fact, the St. Louis Medical Society is opening the way for a closer relationship and better understanding between themselves and those needing and wishing aid.

Last year, the campaign was most successful. Not only were children from St. Louis and the state benefited by its efforts but children from seven other states were aided. It was not possible to reach all in that one campaign and so it is the purpose of the second campaign to go over, re-check and gather into the fold those not touched last year or those fallen by the wayside not considering the end worth the effort.

The public, through the press, is the Society's only medium of communication and it is hoped that as hearty co-operation will be given this year's campaign as was given in the first one. The parents of the little unfortunates may send in the name or the friends of such a one may do so. The point is to obtain the names of those so handicapped.

In this work the physician is taking his true place in the life of his community. He is being of real benefit to humanity. He is manifesting a bit of the prime emotion which prompted him to become a physician. He is giving of himself in the true spirit of helpfulness.

These pioneers in this worthy work are to be given every encouragement that they in turn may encourage other such bodies to take up their responsibility in their own communities.

NEWS NOTES

DR. R. C. ROBERTSON, of Aurora, Secretary of Lawrence-Stone Medical Society, has been appointed assistant physician at State Hospital No. 4, Farmington.

DR. J. S. SAYERS, of Rogersville, president of Webster County Medical Society, has retired from active practice because of ill health and taken up his residence at Springfield.

THE license of Dr. Leon Hurwitz, of Joplin, was revoked for fifteen years by the state board of health April 6, 1923. He was charged with performing a criminal operation on a seventeen-year-old girl.

DR. T. S. BURTON, of Seymour, has removed to Springfield where he has taken offices in the Holland building. He has been given a transfer from Webster County Medical Society to Greene County Medical Society.

THE board of public service, St. Louis, has revoked the license of thirteen dairies and denied a license to eleven others for failure to comply with the city ordinance requiring pasteurization of milk. The attorney for the dairymen announced that he would test the validity of the ordinance by appealing to the courts.

NATIONAL HOSPITAL DAY will be observed May 12. All the hospitals in the state will keep "open house" and entertain visitors.

On May 14, the Missouri Hospital Association will have its meeting in Kansas City. Hospital trustees, hospital administrators and the members of the staffs of hospitals are invited to attend the meeting.

DR. J. CURTIS LYTER, of St. Louis, delivered an address before the Chicago Society of Internal Medicine, March 26, 1923, on "The Pathways of the Mediastinum, Lungs and Pleura." The lecture was based upon experimental work performed at St. Anthony's Hospital during the past three years.

DR. F. R. ANTHONY, of Maryville, Councilor of the First District, has retired from practice in Missouri and will move to Florida, where he expects to establish his permanent residence. Dr. Anthony has been practicing in Missouri for twenty-five years and during that time has been closely identified with the work of the Association in all its departments. He served the Holt County Medical Society as president and secretary and on various com-

mittees. He will be located at Eustis, Lake County, Florida.

A BILL was passed by this session of the legislature authorizing the board of control to appoint a larger number of assistant physicians for the eleemosynary institutions than was allowed under the statutes. The new law has been signed by the Governor. It provides for assistant physicians as follows:

At State Hospital No. 1, Fulton, five assistant physicians; State Hospital No. 2, St. Joseph, six assistant physicians; State Hospital No. 3, Nevada, five assistant physicians; State Hospital No. 4, Farmington, three assistant physicians; Colony for the Feeble-Minded, Marshall, two assistant physicians; State Sanatorium for Tuberculosis, Mt. Vernon, two assistant physicians. The salaries remain the same as formerly—\$1,800 per annum.

THE Salt Lake County Medical Society is arranging for the entertainment of visitors who may be able to stop over enroute, either going to or coming from the meeting at San Francisco. The stopover here can be made inexpensive. Our Society has already appointed committees to greet and assist in making arrangements to see the city and, if possible, some of the surrounding territory, which may include wonderful mountain drives; a visit to Saltair, which is situated on Great Salt Lake, and a visit to the great copper mines in this vicinity.

Large parties intending to make this stopover are requested to give us notice as far in advance as possible as to the number in party and length of time of stopover. Any inquiries relative to this matter may be directed to Secretary Dr. Floyd F. Hatch, Deseret Bank Building, Salt Lake City, Utah.

THE second campaign of the St. Louis Medical Society to aid crippled children has just been opened. The first campaign held last year was such a decided success that the Society determined to make a second survey. Any child from any neighboring state or community who cannot afford treatment is eligible. Names of children from seven other states were turned in last year and many of these were given aid.

The first campaign produced the names of 473 children, 123 of whom were outside the city of St. Louis. In the majority of cases, these children were greatly benefited by the treatment. It was, however, impossible to obtain in one survey the names of all children in need of aid, and it is the purpose of the second survey to supplement the first with as many of the remaining children as possible. Too, there

were some few of the children who did not take advantage of their opportunity and stopped coming for treatment long before they had received the maximum benefit. It is hoped that these children will be so stimulated by this second effort that they will continue until they are dismissed by the attending physician.

BOOKS FOR LEISURE MOMENTS

*Reading with discrimination broadens the mind
and strengthens the mental grasp*

For the lay mind to gain an understanding of the problems still to be solved in connection with war,—war in all its phases—there is no better source of information than Victor Lefebure's "The Riddle of the Rhine." (E. P. Dutton & Co., New York.) It deals with the past of chemical warfare and looks into the future in a remarkably clear-sighted manner. Lefebure is not an alarmist nor is he an emotionalist spurred on by war hysteria. He is a scientist and engineer, well versed in his subject, and possessing rare powers of expressing the exact thing he wishes to impress on his readers.

He gives first, a chapter of explanation of all technical terms used and a brief description of the important gases and their effects. It is here that he states his object in writing the book, which is to present the true facts regarding chemical warfare and to awaken the general public to the intense need of control of all channels which in time of war may be turned toward furthering this branch of warfare.

The chlorine attack of August, 1914, may be regarded, he states, as the first successful use of a German experiment begun some forty years ago when Germany first developed her dye industry. And it is in this dye industry that he sees the danger of the future. Germany came out of the war crippled, true, but with her territory intact, her dye factories still running and capable of being converted into huge gas producers at a moment's notice.

Gas is not the only chemical developed which is of great use. There is the smoke producing chemical used to advance troops, the camouflage chemicals, the chemicals used to counteract the action of enemy gas attacks.

The German flamethrower is an interesting and horrible development of this new branch. German troops were assigned to this unit as punishment for disobedience to the proverbial German "verboten." "Flammenwerfer" was not as successful as the Germans hoped, for the French soon discovered that the use of persistent and well directed machine gun fire quickly disabled these units.

With these things in mind, that is, the history of the development of the chemical warfare, its actions and reactions on enemy troops, plus the fact that Germany has her dye factories and chemical laboratories still intact so that they may be turned into gigantic war machines, he presents the true riddle of the Rhine—How can the chemicals necessary for everyday use be produced and yet the great German monopoly, the Interessen Gemeinschaft, or I. G. as he refers to it, be so controlled as to make the world safe from its menace?

The action of the gases on the eyes, the skin, and the respiratory organs is of particular interest to the physician from a scientific standpoint and the author's suggestion of the perfect chemical for war use as one that would so effect the density of the liquid in the semi-circular canals of the ear as to render great bodies of troops incapable of action, leaves one with much food for thought.

The preface by Marshal Foch and the introduction by Field Marshal Sir Henry Wilson lend an air of authenticity to the book which should dispel all doubt in the reader's mind concerning the importance of the subject dealt with or the truth of the facts presented.

To fathom the riddle of the Rhine is the only solution to everlasting peace and only with the aid of such notable works as Lefebvre's can we hope to find our way out of the maze.

OBITUARY

ROBERT M. FUNKHOUSER, M.D.

On March 13 an outstanding figure in the medical profession of this state was removed from our midst when Dr. Robert M. Funkhouser, of St. Louis, died at the Lutheran Hospital.

Dr. Funkhouser was born in St. Louis on December 10, 1848, and received his early education in the public schools of that city and also under the tutelage of Bishop Dunlap. Later he attended the University of Virginia and graduated with the degree of Bachelor of Arts. He then entered Dartmouth College, finishing in 1871 with the degree of Master of Arts. Afterwards he entered Columbia College Law School and graduated as a Bachelor of Laws and, although admitted to the bar in New York and Missouri he took up the study of medicine and graduated from the Medical Department of the University of New York in 1874. After serving on the staff of the New York Charity Hospital for a short time he returned to St. Louis and at once became identified with medical education in the city of his birth.

For three years he was assistant demonstrator of Anatomy in Missouri Medical College and then helped to establish the Beaumont Hospital Medical College in which school he occupied the chair of clinical surgery for many years. As consulting surgeon to the St. Louis City Hospital and the Female Hospital he served these institutions for a long period of time. His private practice was large but it did not prevent him from serving as Coroner of St. Louis from 1900 to 1904. In the year 1900 he also served as President of the St. Louis Medical Society and soon thereafter became identified with the movement to establish the St. Louis Medical Library Association. His work in the latter organization contributed much to the growth of the Library which was later taken over by the St. Louis Medical Society and until very recently he manifested a great interest in this great collection of medical books.

When the St. Louis Medical Society received the legacy known as the Bartscher Fund he was among those who made this endowment secure and as chairman of the Committee in charge of this fund gave much of his time to a cause which will benefit the medical profession throughout many years in the future. At one time when a loss of thousands of dollars seemed to be almost certain Dr. Funkhouser with the assistance of several others worked hard and successfully until this loss was prevented.

In 1913 he was elected President of the Missouri State Medical Association after having served that organization for many years in various capacities and more particularly on the Committee on Legislation and Public Instruction. He also served his State Association as delegate to the American Medical Association for a period of ten years and it was only because of his own request that he did not represent Missouri in the A. M. A. during the past two years.

Although his professional activities took the major part of his time he was still able to devote a part of his energies to Masonic work. More particularly was this done in the Scottish Rite bodies in which he held the honorary 33rd degree for a great many years.

Dr. Funkhouser was apparently in good health until shortly before his death. His age weighed lightly upon him and although he maintained a close relationship with medical matters he devoted his leisure time during the past year or two to general literature which was always a hobby with him and he spent as much time as possible in the great private library which he collected during his long and active life.

His influence will be felt by future generations who will benefit from his contribution

to medicine and surgery and particularly to medical education and medical legislation.

The following resolutions were adopted by the Council of the St. Louis Medical Society:

WHEREAS, It has come to the notice of the Council of the St. Louis Medical Society that Dr. Robert M. Funkhouser has lately passed from out of this life, and

WHEREAS, The Council of the St. Louis Medical Society is deeply sensible of the many characteristics of great worth that were to be found in the late Dr. Funkhouser, and

WHEREAS, This Society was on many occasions deeply indebted to him for years of special service and continued support, more particularly as president of the Society in the year 1900, and

WHEREAS, The loss of Dr. Funkhouser's companionship is a loss deeply felt in the professional life of the members of this Council, therefore be it

Resolved, That we engross this expression of our appreciation of the character, life work, and standing of the late Dr. Funkhouser and of the indebtedness of this Society to him, and be it further

Resolved, That these resolutions be published in the *Weekly Bulletin* of the St. Louis Medical Society and that a copy of them be sent to each of the surviving members of his family.

FELIX SPINZIG, M.D.

With deep regret the Necrology Committee announces to the St. Louis Medical Society the death of their life-long fellow member, Dr. Felix Spinzig. He was peculiarly one of us as he was born in St. Louis, February 20, 1858, the son of a well-known physician. He graduated at the old St. Louis Medical College in 1885, and was in active practice until his death which occurred from complications following erysipelas on March 1, 1923. To those who enjoyed the privilege of knowing the genial doctor it is surely unnecessary to summarize the character of his life's work, but to the others his memory should be justly held up as a fine example of the old time family doctor. In spite of the incessant demands on his time of a growing family, and of a large general practice among the less prosperous class, he did manage to keep in touch with the advances in medicine through the most rewarding channels, that is the reading of standard literature and attendance at the meetings of the local medical society. Of course, by so doing he sacrificed leisure and pleasure, but he found his reward in the thankfulness of his more thoughtful patients and the clearness of his conscience before his God. He is survived by his widow and two sons, one of whom being a recent graduate in medicine plans, as is fitting, to carry on his father's life work. The members of the St. Louis Medical Society have published this memorial, and proffer to the widow and to the sons their deepest sympathy in our hour of mutual bereavement.—M. P., in *Bulletin*, St. Louis Medical Society.

CORRESPONDENCE

HYDATIDIIFORM MOLE

TO THE EDITOR: MARCH 23, 1923.

A further study of hydatidiform mole has been undertaken at this hospital especially in regard to the frequency of malignancy following this condition. An attempt is being made to collect case reports from outside physicians. Cases reported by physicians will be greatly appreciated and the physician will be given due credit in any literature published.

Address communications to

ROBERT B. KENNEDY, M.D.

Chicago Lying-In Hospital, Chicago, Ill.

MISCELLANY

THE NEW ST. LUKE'S HOSPITAL, KANSAS CITY, MO.

With the completion and occupancy, March 1, of the modern and beautiful new St. Luke's Hospital, Kansas City, Missouri, the institution and organization enter upon a new and promising era. Historically the hospital is twenty-five years old, having its origin under the sponsorship of the late Bishop Edward R. Atwill, Dr. Herman E. Pearse and Miss Elanore Keeley, who was the first superintendent. The years intervening have been full of vicissitudes, numerous changes in location and at times great discouragement but with a faithfulness and unselfish



The New St. Luke's Hospital, Kansas City, Mo.

service on the part of trustees, management and staff, seldom excelled in any similar institution.

The old hospital at Euclid Avenue and 11th Street was closed on the 28th of February. All patients were transferred to the new structure at Mill Creek Boulevard and 45th street, on the South side. This site places the hospital advantageously on a hillside on the north edge of one of the most popular residence districts, The County Club, immediately to the south and east of old Westport, now largely an industrial residence and business district, within ten minutes' drive from the Union Station and two blocks from three main street car lines.

The hospital as it now stands, at a cost of \$650,000, a unit of a proposed plant to be enlarged to 400 beds, is made up of a red brick and terra cotta building offering private rooms and wards for 150 patients, separate heating and laundry departments and beautifully located and landscaped grounds of five acres. A practical feature of the site in reference to the two north and south thoroughfares, is in offering

separate entrance on the front for visitors and doctors and a main rear entrance for patients and service. The basement, above ground, due to the natural topography, contains outpatient department, laboratories of pathology, morgue, X-ray and consultation rooms.

The first floor has large reception and retiring rooms, offices for all executives, drug room, record room, nurses' lecture room and chapel, and dining rooms, telephone booths, etc. The four floors above are practically arranged for segregating the various services of medicine, surgery, obstetrics, pediatrics and isolation. Features include one floor of twenty-one rooms assigned to the obstetrical department with its specially arranged delivery, anesthesia, operating and nursery rooms. The pediatric service has perfect isolation with glass cubicles and special rooms for emergency. The roof garden is large and delightful. Each floor has its own beautiful sun parlor to the south, and three floors have wards in addition with a capacity flexible, for from fifteen to twenty patients.

The operating rooms on the fifth floor are modern in location, lighting and equipment and are divided for major and minor work. The laboratories of pathology and X-ray are equipped by the hospital management and directed by members of the staff, limiting themselves to their specialties; technicians on duty are available at any hour. The plaster and cystoscopic rooms are wired for X-ray and thoroughly equipped for efficient orthopedic and genitourinary work.

To take care of the patients in permanent residence are a corps of interns, graduates in medicine, and a highly trained nursing service under the direction of Miss Collie French, from St. Luke's Hospital, St. Louis, and a graduate group of supervisors for each floor. A dietitian, laboratory technician, record clerk, telephone operator, registrar and druggist are regular employees in addition to the unskilled employees needed in the various operating departments.

The prices and fees for beds and services rendered have been standardized and made to meet the needs and ability to pay of all classes. Beds in the larger wards are \$2.50 per day; in the two-bed wards \$4. The private rooms vary from \$5 to \$15 per day, the latter being suites of bedroom and sitting room with special bath, toilet and closet. Each private room is furnished with individual toilet and toilet utensils and closet. The furniture, rugs and draperies are practically uniform throughout.

The hospital staff consists of an executive and a general staff. The executive staff composed of the original staff of twenty-five men is to be enlarged or changed as necessary by additions from the general staff of one hundred men selected from the qualified and reputable members of the local profession.

The management is vested in a board of trustees composed of Episcopal churchmen presided over by Bishop Sidney Partridge of The Diocese of West Missouri. The churchmen are business men and financiers who are thoroughly imbued with, and have assumed the large responsibility of, operating and financing this first big Episcopal Church institution in West Missouri. It is in line with what other churches and other cities have undertaken. Kansas City has been low on hospital beds. Modern and humanitarian principles and practice demanded new and larger buildings with better equipment. Kansas City contributed generously in the campaign, sectarian and racial lines being disregarded, raising a fund of \$300,000.

It is needless to say that the St. Luke's Hospital now operating in Kansas City, Missouri, is one of the most beautifully located and most thoroughly equipped institutions of its kind in America. It is our hope that this hospital may in the future meet

the responsibility placed upon it of aiding suffering humanity in the spirit of Christ, the Great Physician.

The board of trustees, the management and the staff desire to take this opportunity to express their appreciation to the architects, Messrs. Keen and Simpson, and The Long Construction Company, builders, for their skill and patience; to the public at large who contributed so bountifully toward the completed project, and to the advice and assistance of bankers and financiers, who made possible the early occupancy of the new St. Luke's Hospital.

ST. LOUIS MEDICAL SOCIETY—SPECIAL TO SAN FRANCISCO

All Pullman De Luxe Special Train to Los Angeles en route to San Francisco, California, account American Medical Association Convention, June 25-29.

MISSOURI PACIFIC RAILROAD, the SANTA FE SYSTEM and the LOS ANGELES STEAMSHIP CO.

Itinerary

Leave St. Louis, 9:30 P. M., June 16th, Mo. Pac.
Arrive Kansas City, 7:00 A. M., June 17th, Mo. Pac.

Leave Kansas City, 11:45 A. M., June 17th, Santa Fe.

Arrive Colorado Springs, 8:00 A. M., June 18th, Santa Fe.

Leave Colorado Springs, 6:00 P. M., June 18th, Santa Fe.

Arrive Santa Fe, 9:15 A. M., June 19th, Santa Fe.
Leave Santa Fe, 11:30 A. M., June 19th, Santa Fe.
Arrive Albuquerque, 2:15 P. M., June 19th, Santa Fe.

Leave Albuquerque, 4:00 P. M., June 19th, Santa Fe.

Arrive Grand Canyon, 7:00 A. M., June 20th, Santa Fe.

Leave Grand Canyon, 8:00 P. M., June 20th, Santa Fe.

Arrive Los Angeles, 3:30 P. M., June 21st, Santa Fe.

Leave Los Angeles, 3:00 P. M., June 22nd or 24th, via Pacific Electric Line.

Arrive Wilmington, 3:45 P. M., June 22nd or 24th, via Pacific Electric Line.

Leave Wilmington, 4:00 P. M., June 22nd or 24th, via Los Angeles Steamship Co.

Arrive San Francisco, 10:00 A. M., June 23rd or 25th, via Los Angeles Steamship Co.

RAILROAD FARES

The fare via this route going and any other direct route returning is \$81.50 plus \$1.00 for side trip to Santa Fe, N. M., and \$9.12 for side trip to Grand Canyon. Tickets will be honored via the Los Angeles Steamship Co. from Los Angeles to San Francisco without extra charge, excepting for meals and berth which range in price from \$5.00 to \$8.00 according to location.

The return trip from San Francisco at the \$81.50 rate includes the trip over the Scenic Route of the World, namely, the Western Pacific, Denver & Rio Grande Western, and the Missouri Pacific Railroads, through the famous Feather River Canyon over the cut-off of the Great Salt Lake, Salt Lake City, Glenwood Springs, the Canyon of the Grand River, Eagle River Canyon, over Tennessee Pass, through the Royal Gorge and the Grand Canyon of the Arkansas into Pueblo, Colorado Springs or Denver, and then to St. Louis over the Missouri Pacific Railroad through the finest farm lands of Kansas and Missouri. This will make an excellent trip and is the most picturesque route.

A side trip can be made from Salt Lake City to and through Yellowstone Park and return, including

GENERAL MEETINGS

TUESDAY, MAY 8, 1923—2:00 P. M. AUDITORIUM, SCOTTISH RITE CATHEDRAL
New Methods of Diagnosing Early Pregnancy.....

Harel Lip.....W. C. Gayler, M.D., St. Louis
Prevention of Deformities in Children with Acute Surgical Lesions.....Warren R. Rainey, M.D., St. Louis
Discussion opened by Dr. M. B. Clopton.

Quartz Violet Ray in the Treatment of Children's Diseases.....John Zahorsky, M.D., St. Louis
Practical Considerations in Handling Malnutrition in Older Children.....Borden S. Veeder, M.D., St. Louis
Epilepsy in ex-Service Men.....F. M. Barnes, Jr., M.D., St. Louis

WEDNESDAY, MAY 9, 1923—9:30 A. M. AUDITORIUM, SCOTTISH RITE CATHEDRAL
Chronic Pneumonitis Following Influenza.....

Cardiac Pneumofibrosis.....David S. Dann, M.D., Kansas City
(By invitation)

The Value of the X-Ray in the Diagnosis of Chest Conditions.....Sam H. Snider, M.D., Kansas City
Discussion on Recent Legislation .. Herman E. Pearse, M.D., Kansas City

WEDNESDAY, MAY 9, 1923—2:00 P. M. AUDITORIUM, SCOTTISH RITE CATHEDRAL
Theory and Practice of Antiseptics.....Marsh Pitzman, M.D., St. Louis
Secondary Operations in Thyrotoxicosis.....

.....Edward G. Blair, M.D., and Kerwin W. Kinard, M.D., Kansas City
Diagnosis and Treatment of Exophthalmic Goitre.....

.....E. V. Mastin, M.D., St. Louis
X-Ray Therapy in Thyroids.....O. H. McCandless, M.D., Kansas City
Essential Factors in the Treatment of Intestinal Obstructions.....

.....T. G. Orr, M.D., Kansas City

THURSDAY, MAY 10, 1923 - 9:30 A. M. AUDITORIUM, SCOTTISH RITE CATHEDRAL
The Direct Vision Adenotome for the Removal of Adenoids.....

.....Isaac D. Kelley, M.D., St. Louis
Enucleation of the Eyeball.....J. Ellis Jennings, M.D., St. Louis
Two Striking Cases of Optic Neuritis and Choroido-Retinitis Secondary to Accessory Nasal Sinus Disease.....

.....M. Hayward Post, M.D., St. Louis
The Operative Mobilization of Ankylosed Joints; With Moving Picture Demonstration.....Frank D. Dickson, M.D., Kansas City
Common Mistakes in the Treatment of Poliomyelitis.....

.....J. Edgar Stewart, M.D., St. Louis
A Method of Implanting Bone Graft in the Treatment of Pott's Disease.....S. A. Grantham, M.D., Joplin

THURSDAY, MAY 10, 1923 - 2:00 P. M. AUDITORIUM, SCOTTISH RITE CATHEDRAL
Cancer Surgery: Practical Considerations.....

.....Elmer D. Twyman, M.D., Independence
Recent Physical and Mechanical Development of High Voltage X-Rays and Their Direct Relation to Cancer Therapy.....

.....E. C. Ernst, M.D., St. Louis
Primary Results in the Treatment of Cancer with High Voltage X-Ray.....Clyde O. Donaldson, M.D., and

.....Geo. E. Knappenberger, M.D., Kansas City
Successful Radiation Treatment of Lymphosarcoma.....

.....E. H. Skinner, M.D., Kansas City
Therapeutic Use of the Duodenal Tube.....Horace W. Carle, M.D., St. Joseph

FIFTEENTH ANNUAL MEETING OF MISSOURI SOCIETY OF MEDICAL SECRETARIES
JOPLIN, WEDNESDAY, MAY 9, 1923—12:15 P. M.

The Secretaries will meet in the Gold Room of Connor Hotel on May 9 promptly at 12:15 and will close promptly at 2:15. No other program will be going on at this hour. Promptly at 12:15 luncheon will be served.

PROGRAM

Address: By Our PresidentDr. M. P. Overholser, Harrisonville
Our State Society.....Dr. A. R. McComas, Sturgeon

President, Missouri State Medical Association

Doings of the House of Delegates.....Dr. P. E. Williams, Nevada

State Legislation.....Dr. H. E. Pearse, Kansas City

Doings of the Council.....Dr. T. B. M. Craig, Nevada

Nitro by Hypo....."Uncle John" Gaines, Excelsior Springs

Secretary of the best County Society in the State (so he says)

Election of Officers for 1924.

We want every Secretary, past Secretary, and past President of the Secretaries, and their wives, to be present.

DR. M. P. OVERHOLSER, President.

DR. J. T. HORNBACK, Secretary.

THE JOURNAL OF THE Missouri State Medical Association

The Official Organ of the State Association and Affiliated County Societies
Issued Monthly under direction of the Publication Committee

Volume XX

ST. LOUIS, MO., JUNE, 1923.

NUMBER 6

E. J. GOODWIN, M. D., EDITOR
3529 Pine St., ST. LOUIS, MO.

PUBLICATION COMMITTEE { W. H. BREUER, M. D., Chairman
S. P. CHILD, M. D.
M. A. BLISS, M. D.

ORIGINAL ARTICLES

UPPER INTESTINAL TRACT OBSTRUCTION: Chemical Studies and Indications for Treatment*

RUSSELL L. HADEN, M.D.,
AND
THOMAS G. ORR, M.D.,
KANSAS CITY, MO.

The subject of intestinal obstruction has attracted the interest of many workers in recent years for two main reasons. First of all surgeons realize that the condition is one of the most serious of the acute lesions with which they have to deal. They appreciate also that the results of treatment are extremely unsatisfactory as evidenced by the persistently high mortality of over 50 per cent. On the other hand, internists think that the solution of the problem of the toxemia incident to intestinal obstruction will throw much light on certain obscure conditions which seem to be intoxications arising from the upper intestinal tract.

The many theories advanced as to the source and nature of the toxic agent and the method by which it produces death have been recently reviewed by Ellis.¹ The following summary is taken from his excellent article:

The earliest theory was that the symptoms of intestinal obstruction result from an auto-intoxication arising from the stagnating and putrefying intestinal contents. While it is true that symptoms similar to those of obstruction may be produced by the injection of material from the proximal loop, this is not the whole solution.

It was next thought that death was due to a bacteriemia. This was easily disproved by blood cultures.

Later the idea was advanced that the toxin comes from the biliary apparatus or the pancreas. It can be shown, however, by properly planned experiments that the toxemia

develops when there is no interference with the secretions of the liver or pancreas.

Similarly it has been thought by some that the condition is primarily one affecting the central nervous system, death being due to splanchnic paralysis with cerebral anemia, or to reflex irritation of the sympathetics. There is no experimental proof of such an action.

The fifth theory was that a disturbed circulation is responsible for changes in the intestinal wall which produce the symptoms and death. Intravenous injection of material from the obstructed intestine will, however, produce the symptoms without any such changes in the intestinal wall.

The rapid and extreme dehydration of tissue which follows obstruction has also been held to be a cause. The experimental work on which this theory is based is subject, however, to a more satisfactory interpretation.

The most generally accepted theory at the present time is that the intoxication arises in the duodenum, either through a perversion of a normal function or an abnormal absorption of the normal proteolytic ferments. There is much experimental work to show that there is an absorption of a proteolytic ferment which is inert in the cells of the normal mucosa and is innocuous when excreted into the lumen of the intestine, but is very poisonous when absorbed into the blood stream.

It is now generally accepted that the symptoms are due to the action of a powerful toxic agent which develops soon after the obstruction occurs. The toxic agent destroys protein at a rapid rate as shown by the great increase in nitrogen excretion in the urine coincident with a high level of non-protein nitrogen in the blood.

The increase in non-protein nitrogen in the blood was first noted by Tileston and Comfort² and confirmed by Whipple³ and his associates in a study of dogs following experimentally produced intestinal obstruction. Whipple found that the non-protein nitrogen may reach a very high level and while the urea nitrogen is increased there is very little change in the other known non-protein nitrogenous bodies. The amino acid nitrogen, uric acid and crea-

*Read before Jackson County Medical Society, Kansas City, Mo., December 12, 1922.

¹ Awarded the prize of \$100 offered for the best paper read before the Jackson County Medical Society during the year by a member in practice not more than ten years.

tinine remain nearly normal, so the increase is limited almost entirely to the urea nitrogen and undetermined nitrogen. Whipple determined only the nitrogenous constituents.

McCallum⁴ and his associates, McCann,⁵ and Hastings, Murray and Hastings,⁶ in experimental pyloric obstruction have noted an increase in the alkali reserve of the blood and a decrease in the chlorides. The fall in the chlorides they have interpreted as due to a loss of HCl in the gastric fluid through vomiting. They have made no studies on the non-protein nitrogenous bodies of the blood.

The only studies on the alkali reserve of the blood in intestinal obstruction are those made by Odaira.⁷ He worked with rabbits, using the hemoglobin dissociation constant as an index of the reaction, and came to the conclusion that there is always an acidosis. We can find no record of any studies on the blood chlorides in intestinal obstruction.

Our interest in the subject began with a study of certain acute reactions following gastroenterostomy.⁸ Here we found a very high nitrogen excretion and a high level of non-protein nitrogen in the blood as had been previously found by others in intestinal obstruction. We found also a complete absence of chloride excretion in the urine due to a very low level of chlorides in the blood and an alkalosis as shown by the very high carbon dioxide combining power of the blood plasma. These findings we consider as due to an upper intestinal tract intoxication probably secondary to a temporary duodenal obstruction at the gastroenterostomy stoma.

Similar changes in the chlorides and carbon dioxide combining power of the plasma of the blood as observed by us in these cases had not heretofore been pointed out as occurring in intestinal obstruction. We decided to study more completely and systematically the changes taking place in the blood of dogs following obstruction of the pylorus and of the intestine at different levels. (Tables I, II and III.) The animals were kept in metabolism cages and given no food during the course of the experiments. Blood for chemical analysis was obtained before operation and each day thereafter until the death or recovery of the animal. On each specimen the non-protein nitrogen, urea nitrogen, uric acid, creatinine, sugar, chlorides and carbon dioxide combining power have been determined. The daily chloride and nitrogen excretion in the urine have also been followed. In this study up to the present time, forty-four dogs and two rabbits have been operated upon and various types of upper intestinal tract obstruction produced.

The average findings in twenty-five normal dogs are as follows:

Total non-protein nitrogen, 30.3 mgs. per 100 c.c.

Urea nitrogen, 10.9 mgs. per 100 c.c.
Uric acid, 1.4 mgs. per 100 c.c.
Creatinine, 1.5 mgs. per 100 c.c.
Sugar, 76.0 mgs. per 100 c.c.

TABLE I.

Dog No.	Day after operation	Blood (mgs. per 100 c.c.)						(vol. %)			Urine		
		Non-protein nitrogen	Urea nitrogen	Uric acid	Creatinine	Amino acid nitrogen	Sugar	Chloride	CO ₂ combining power	Volume c.c.	Chlorides (mgs. per 100 c.c.)	Volume c.c.	
12	0	22.2	5.6	2.8	1.8	1.6	6.6	115	455	34.7	1,000	0.33	
	1	24.6	7.9	1.6	1.6	1.6	137	450	27.2	400	0.40		
	2	30.0	7.9	2.6	1.5	1.5	137	550	52.3	150	0.21		
	3	36.0	10.3	2.6	1.5	1.5	189	465	54.1	250	2.00		
	4	38.9	14.0	2.6	1.5	1.5	200	300	65.3	1500	2.10		
	5	57.8	33.6	1.9	1.9	1.9	135	340	58.6	500	1.35		
	6	77.0	43.3	2.5	1.9	1.9	175	220	71.8	1300	0.78		
	7	70.6	43.3	2.2	1.8	1.8	172	220	85.7	1200	1.78		
	8	75.0	55.0	2.1	1.7	1.7	172	220	76.4	1300	1.56		
	9	81.8	54.6	2.1	1.6	1.6	109	270	83.8	1300	1.56		
13	0	20.5	7.5	1.6	1.4	1.4	75	510	39.3	300	0.60		
	1	22.8	8.4	2.1	1.5	1.5	81	470	51.4	600	2.40		
	2	26.2	7.9	2.2	1.5	1.5	103	420	57.9	1250	3.60		
	3	33.2	16.4	2.0	1.5	1.5	73	87	290	69.0	2000	3.20	
	4	112.8	58.8	1.9	1.9	1.9	82	260	80.1	800	1.12		
	5	180.0	106.2	2.3	2.4	2.4	102	430	86.0	1500	2.50		
	7	266.0	162.5	2.7	2.7	2.7	110	101.7	700	400	0.46		

Typical blood chemical findings in pyloric obstruction.

TABLE II.

Day after operation	Blood (mgs. per 100 c.c.)						(vol. %)			Urine		
	Non-protein nitrogen	Urea nitrogen	Uric acid	Creatinine	Amino acid nitrogen	Sugar	Chlorides	CO ₂ combining power	Volume c.c.	Chlorides (mgs. per 100 c.c.)	Nitrogen (mgs. per day)	
0	20.0	5.2	2.0	1.6	5.7	91	490	28.7	1000	4.2	3.2	
1	22.2	8.4	1.8	1.6	6.4	88	420	40.0	500	0.2	5.3	
2	31.6	7.0	1.5	1.6	6.4	77	340	57.0	800	3.7	5.3	
3	30.6	5.6	1.4	1.4	7.5	121	420	50.4	300	0.1	2.8	
4	37.5	15.4	1.3	1.3	6.6	80	300	48.5	300	0.1	2.8	
5	30.6	5.1	1.4	1.4	5.8	114	280	62.6	250	0.3	2.9	
6	57.8	25.7	1.4	1.3	7.5	125	250	75.9	80	0.4	0.5	
7	97.3	46.2	1.6	2.7	10.0	154	360	77.1	200	0.4	1.6	
8	150	88.3	1.5	1.5	7.7	119	210	66.4	200	0.3	2.1	

Dog No. 24. Blood chemical findings in obstruction of lower end of duodenum.

TABLE III.

Dog No.	Day after operation	Blood (mgs. per 100 c.c.)						(vol. %)			Urine		
		Non-protein nitrogen	Urea nitrogen	Uric acid	Creatinine	Amino acid nitrogen	Sugar	Chlorides	CO ₂ combining power	Volume c.c.	Chlorides (mgs. per 100 c.c.)	Nitrogen (mgs. per day)	
8	0	23.6	7.9	1.1	1.1	5.4	68	420	42.8	10	0.2	0.1	
	1	34.9	7.5	1.0	1.0	5.0	56	350	51.3	500	1.2	0.6	
	2	25.4	7.5	1.0	2.0	5.4	57	370	58.9	300	0.33	3.6	
	3	30.0	9.3	1.2	1.6	5.3	64	355	50.4	500	0.5	1.1	
	4	40.0	17.8	2.3	1.7	4.6	87	310	51.3	500	0.7	4.6	
	5	42.2	27.1	1.2	1.0	6.1	61	330	59.8	1000	3.6	2.6	
9	0	27.3	10.3		1.6		109	520	38.1	300	0.9	0.9	
	1	33.0	11.2		1.9			360	42.8				
	2	30.0	12.6	1.5	1.8			370	50.4	1000	1.0	3.3	
	3	30.6	11.7	1.4	2.0	6.6	116	330	50.4	200	0.8	1.6	
4	40.0	22.4			1.6	6.1	90	290	65.5	300	0.66	5.4	

Blood chemical changes in obstruction of ileum.

Chlorides (whole blood), 458 mgs. per 100 c.c.

Carbon dioxide combining power, 36.4 vol. per cent.

We have found that the first change to take place in the blood after pyloric or upper intestinal tract obstruction⁹ is a fall in the chlo-

urea nitrogen and undetermined nitrogen since the uric acid, creatinine and amino acid nitrogen remain at approximately the normal level.

The fundamental change in the chemistry of the blood during the intoxication seems to be the depletion of the chlorides. The chloride metabolism presents probably the most impor-

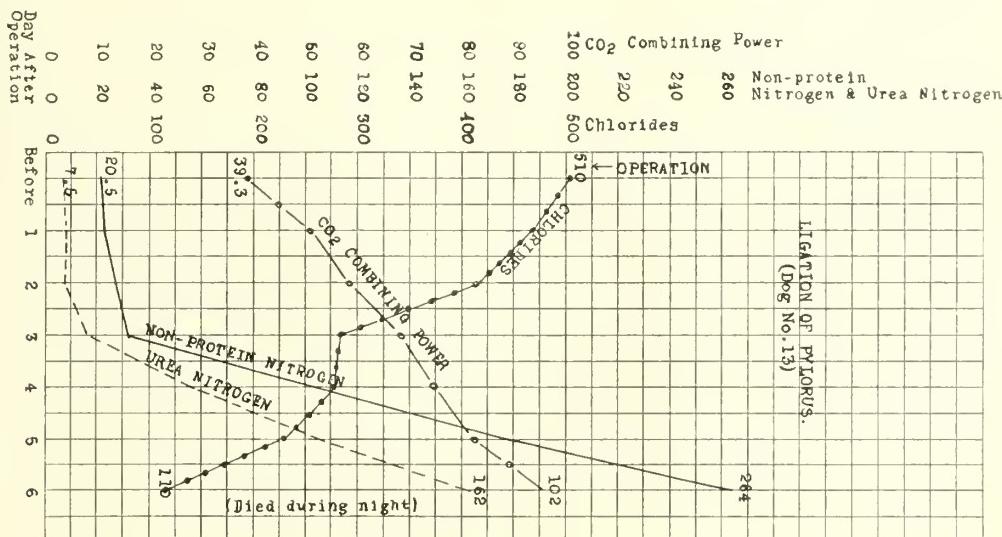


Chart 1. Showing typical changes in the total non-protein nitrogen, urea nitrogen, carbon dioxide combining power and chlorides after pyloric obstruction.

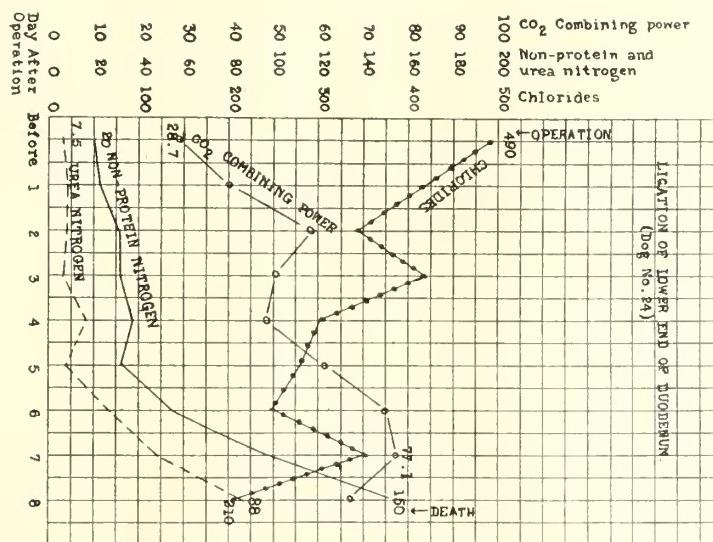


Chart 2. Showing typical changes in the total non-protein nitrogen, urea nitrogen, carbon dioxide combining power and chlorides after obstruction of the lower end of the duodenum.

rides, usually with a coincident rise in the carbon dioxide combining power of the plasma. (Charts I and II.) After the chlorides are depleted the rise in non-protein nitrogen begins, due to the action of the toxic agent on body protein, and continues until death. The increase in nitrogen is almost entirely in the

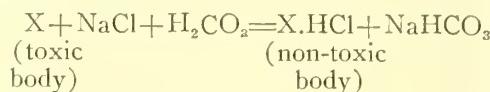
tant feature of the toxemia incident to pyloric and high intestinal obstruction. The chlorides are lost or used up in some manner. It seems that the depletion of chlorides must be related to the process of protein destruction. The most obvious explanation of the fall is a loss in the gastric juice through vomiting. It is true that the loss by this route cannot be dis-

regarded. We have studied one clinical case, however, in which the typical blood changes described were observed in the entire absence of vomiting. In several of the dogs, the loss of chlorides in this manner was negligible, although the drop in blood chlorides began immediately after operation. To rule out vomiting completely as the sole cause of the fall, we have studied the blood of rabbits before and after intestinal obstruction. Rabbits cannot vomit. In one animal with a duodenal obstruction the non-protein nitrogen rose from 36 to 108 mgs. per 100 c.c. in the thirty-six hours intervening between operation and death. We have also shown that in starvation alone there is no change in the chlorides.⁹

There are several other possible explanations for the behavior of the chlorides. They may be actually used up as a result of protein destruction probably by combining with certain protein split products. Against this explanation is noticeable fall in chlorides before the tissue destruction becomes evident. There may be an attempt to protect the body protein by a change in reaction. Autolysis, for instance, is not so active in an alkaline as an acid medium and the process of protein destruction closely resembles that due to an autolytic ferment. The final possibility is that the chlorides act as a protective agent converting the toxic body into a non-toxic one. This we believe to be the correct explanation for reasons which will be given later. The chlorides according to this theory act in a sense as an anti-toxic agent.

The rise in alkali reserve as shown by the carbon dioxide combining power of the plasma is, we believe, an incident in the course of the chloride metabolism. The chloride ion in the action of neutralization is fixed, probably as a hydrochloride, leaving the sodium ion free

to combine with carbonic acid and circulate as sodium bicarbonate. This reaction of the chlorides with the toxic body may be expressed as follows:



Such a reaction explains both the rise in carbon dioxide combining power and the loss of the chloride in its action as a neutralizing factor. The amount of sodium bicarbonate in the blood at any time during the intoxication will depend upon the rate of formation of the carbonate, the rate of excretion, and the neutralizing effect on the carbonate of acid bodies formed in the course of the toxemia. Hence the amount in the blood at any one time is not an index of the amount actually formed.

It is a noteworthy fact that with all the work of many investigators on intestinal obstruction during the past ten years, no new treatment has been evolved. The mortality of the condition has remained much the same even in the hands of the most capable surgeons.

If our idea of the rôle of the chlorides in the toxemia be correct, the findings in respect to the chloride metabolism and carbon dioxide combining power of the plasma, however, give very definite leads to treatment. (Charts III and IV.) First of all it is quite evident that the use of alkalis is contraindicated. It is true that at times the alkali reserve may be lower than normal, but it can be brought up much more readily with sodium chloride than with sodium bicarbonate. The use of alkalis may even make a serious condition more serious.

We believe that we have definitely proven our theory as to the part played by the chlorides in the results obtained by treatment. We

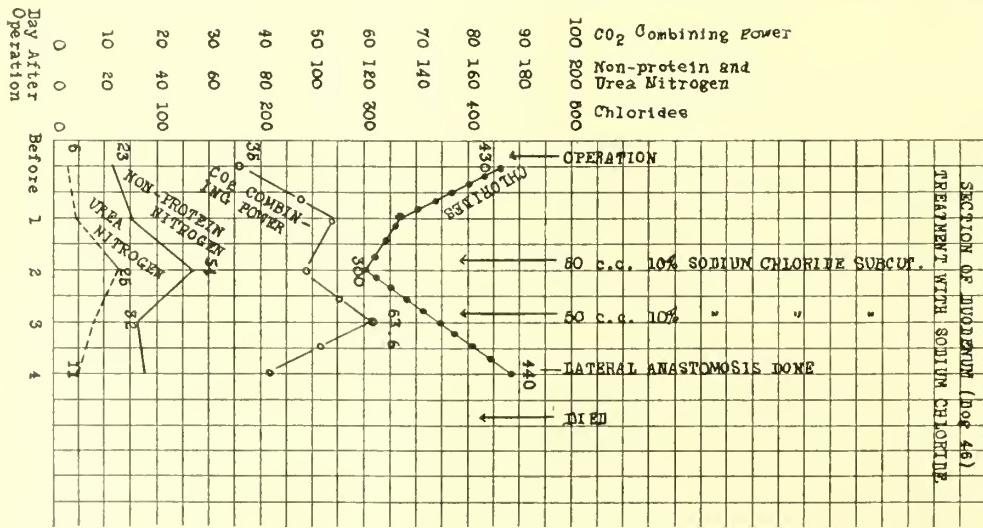


Chart 3. Showing the effect of treatment of the toxemia of duodenal obstruction with 10 per cent sodium chloride.

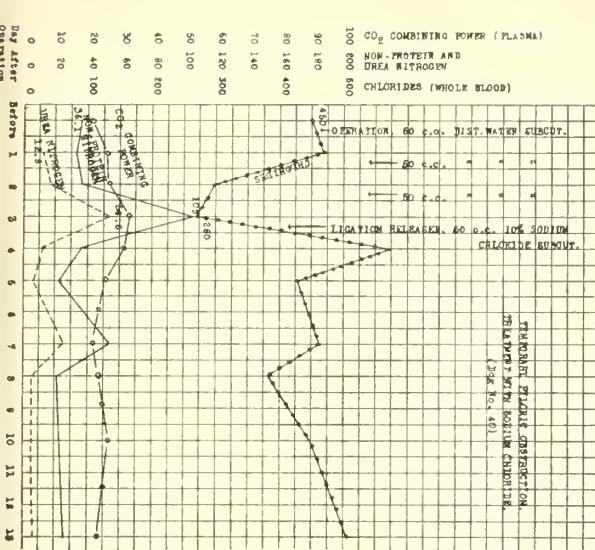


Chart 4. Showing the effect of treatment of the toxemia of pyloric obstruction with 10 per cent sodium chloride.

have found that by injecting subcutaneously in experimental animals a ten per cent. solution of sodium chloride at the time of operation, the rise in blood nitrogen may be prevented. Likewise, when the chlorides are well depleted after an obstruction has existed for several days, in many cases treatment with sodium chloride will cause the nitrogen to fall and the symptoms due to the toxemia to disappear. Animals given the same quantity of distilled water or 25 per cent. glucose show the same reaction as untreated animals. This effect of treatment is true of both pyloric and of duodenal obstruction, the most serious of all the types with which one has to deal. The fact that the blood nitrogen may be made to fall after the symptoms are well under way shows very definitely, we believe, that a patient with intestinal obstruction may become a better surgical risk by a preparatory treatment with sodium chloride.

We have used the ten per cent. solution to exclude any effect of fluid alone. In clinical cases as much fluid as possible should be given, together with the necessary amount of salt. The maximum amount of fluid which can be given will usually require at least a 3 per cent. solution of sodium chloride if the necessary salt is to be supplied.

In dogs we find that roughly one gram of sodium chloride per kilo of body weight is required as an initial dose. The only exact way to regulate the dosage is to follow the blood chlorides, since the toxemia varies greatly in different cases. It is possible that other chlorides or halides or combinations will be more effective in treatment than the sodium chloride alone. Studies are contemplated to settle this point.

This conception of the chlorides as a line of

defense against certain toxic bodies assigns to the chlorides an entirely new function in the animal organism. Chlorides heretofore have been considered as merely regulators of osmotic tension in the body fluids and tissues, and as furnishing HCl to provide a suitable reaction for ferment action in the stomach.

In certain other conditions the reason for the behavior of the chlorides has remained an unsolved problem. Three classic examples may be cited, namely, acute pneumococcus lobar pneumonia, which is typically accompanied by low blood chlorides and low chloride excretion; serum disease, which has been shown by Longcope, Rackmann and Peters¹⁰ to have low chlorides in the blood during the period of acute symptoms; and pernicious anemia, which is always accompanied and probably always preceded by an absence of chlorides in the gastric juice. The explanation for the fall in chlorides in intestinal obstruction would seem equally applicable here and likewise the indication for treatment. Further clinical studies are either under way or contemplated to determine the value of chlorides in the specific treatment of these conditions.

SUMMARY

Following pyloric or upper intestinal tract obstruction there is a rapid fall in the chlorides of the blood and a rise in the carbon dioxide combining power of the plasma. Later there is a rise in the non-protein nitrogen and urea nitrogen.

The fundamental change is a fall in chlorides. The rise in nitrogen does not take place until the chlorides are depleted.

The rise in the alkali reserve, as evidenced by the increase in carbon dioxide combining power of the plasma, is an incident in the chloride metabolism. The chlorine combines with the toxic body or bodies probably in the form of the hydrochloride and the sodium combines with carbonic acid to form sodium bicarbonate.

The rôle of the chlorides seems essentially protective, neutralizing, or antitoxic.

Sodium chloride is very effective in treating the toxemia of intestinal obstruction. If given at the onset of the obstruction the rise in nitrogen may not occur. If given after the rise in nitrogen has begun, a rapid fall usually takes place.

Since there is practically always a heightened alkali reserve, alkalies should not be given.

It is quite possible that similar treatment will be of value in other conditions characterized by a similar chloride metabolism.

BIBLIOGRAPHY

1. Ellis, J. W., *Annals of Surgery*, 75, 429, 1922.
2. Tileston and Comfort, *Arch. Int. Med.*, 14, 620, 1914.
3. Cooke, Rodenbaugh and Whipple, *Jour. Exp. Med.*, 23, 712, 1918.
4. McCallum, Lintz, Vermilye, Leggett and Boas, *Bull. Johns Hopkins Hospital*, 31, 1, 19.
5. McCann, W. S., *Jour. Biol. Chem.*, 35, 553, 1918.
6. Hastings, Murray, and Hastings, *Jour. Biol. Chem.*, 46, 233, 1921.
7. Odaira, T., *Tohoku Jour. Exp. Med.*, 2, 570, 1922.
8. Haden, R. L., and Orr, T. G. *Bulletin Johns Hopkins Hospital*, 34, 26, 1923.
9. Haden, R. L., and Orr, T. G. *Jour. Exp. Med.*, 37, 365, 1923.
10. Longcope, Rackmann and Peters, *Arch. Int. Med.*, 18, 496, 1918.

AMEBIC INFECTION OF THE LIVER
A Case Occurring After the Infection was Latent
Thirty Years

J. W. LARIMORE, A.B., M.D.

ST. LOUIS

The following case is reported as illustrating an unusual cause of continued fever, and also as presenting some unusual features of an amebic infection.

E. M., age 34, male, unmarried. The patient came under observation July 17, 1922. The chief complaint was tenderness in the left upper abdomen and marked loss of weight during the six weeks previous.

The family history was unimportant.

Previous History. He had dysenteriae and diphtheria in childhood; gonorrhea at twenty-eight years, and venereal sores, not chancre, with sequelae of orchitis. In 1919, at thirty-one years, while in army, he had rheumatism in legs for two weeks. He had had a rapid heart prior to enlistment and was at first rejected by the army because of it.

The present illness began eight weeks previously with a discomfort, "tightness," in the epigastrium. He then became drowsy and tired. These symptoms persisted. There was marked anorexia and a loss of thirty pounds during eight weeks. He had continued fever during that time. Vomiting occurred only when attempting to clear the throat of mucus. Diffuse pain in upper abdomen occurred with deep breathing or lying on left side, and intermittently throughout the day. At times it was severe.

He had always been moderately constipated. There were no limitations of the diet. Prior to 1919 he had used alcohol moderately. He smoked one package of cigarettes daily. The appetite was normal. The meals were irregular. Sleeping was normal. He was unmarried. His occupation was chiefly office work.

Physical Examination. He was five feet and eight inches tall and weighed 147 pounds. The skin was moist, warm and elastic. The panniculus was fair only. The musculature was heavy. The pupils were irregular and reacted normally. The tonsils were small.

Examination of the lungs was not notable.

The cardiac dullness was normal. The pulse rate was 136. The heart sounds were of a fetal character, but clear. The blood pressure was systolic 120 and diastolic 70.

Abdominal examination showed tenderness of slight degree was localized at the midleft costal margin. The liver was four centimeters below the costal margin in the right midclavicular line. Reflexes were active and bilaterally equal. Rectal examination showed normal conditions. The prostate was moderately enlarged and slightly tender. A profuse, thin, watery secretion was expressed and showed microscopically a few pus cells.

The daily white blood count, from July 18 to 25,

ranged from 21,000 to 31,000, and the temperature ranged from an average daily minimum of 37.2 C. to an average daily maximum of 38 degrees C.

The stool showed no ameba and there was no occult blood.

The sputum showed no acid fast bacilli and was otherwise not notable.

The Wassermann of the blood was negative.

The renal functional test by phenolsulphonephthalein was 65 per cent. for the first hour and 15 per cent. for the second.

Gastric Analysis. The fasting content was about 30 c.c. of light yellow fluid with some mucus. Microscopic examination showed only yeast in moderate numbers. The occult blood test was negative. Fractional aspirations of test meal showed no free HCl.

Urinalysis. Sp. gr. 1.005. No albumin. No sugar. The sediment showed a few white blood cells.

Proctoscopic examination showed only an excess of mucus.

An electrocardiogram showed an idiopathic tachycardia.

X-ray of the gastro-intestinal tract showed a periduodenitis of indeterminate origin, and a colonic motor delay.

X-ray of the chest by a "7-foot plate" was not notable for pulmonary findings and gave the heart measurements as: median right, 6 cm.; median left, 8.5 cm.; length, 14 cm.; aortic width, 5.5 cm.

Operation. Exploratory laparotomy, July 26, 1922, Dr. A. O. Fisher, high right rectus incision. Muscle pulled outward. Peritoneal cavity opened; no fluid. Liver presented. The edge of the liver was definitely rounded, but seemed normal in consistency. The left lobe was possibly somewhat enlarged. There were no scars. The gall-bladder was soft and easily emptied, no stones, but adhesions going over the transverse colon. The stomach was situated high, seemed smaller than normal and was not easily mobilized. Its wall was everywhere smooth and there was no evidence of an ulceration. The pylorus was normal; also the duodenum as far as could be seen and felt. The foramen of Winslow was patent. There was no evidence of a mass or tumor of any kind in the epigastrium. The cecum was delivered. Its wall seemed thick and injected. The appendix was unusually large and perfectly white. There were no adhesions about it. It was removed and the stump buried. The spleen and the kidneys were palpated and seemed to be normal. Wound closed in layers without drainage. Patient took anesthetic well; vomited twice.

Surgical Pathology. The specimen is an appendix, measuring 3½ cm. in length and about one-half cm. in diameter; was split down the side. The mesoappendix shows marked accumulation of fat.

Microscopical Pathology. The muscle wall was thickened. The blood vessels enlarged but not engorged.

Diagnosis. Appendicitis, chronic.

The operation did not alter the general clinical course. Recovery from the operation and the healing of the wound was perfect. The patient continued to have a temperature to 38 degrees C. and the white blood cells persisted between 23,000 and 26,000.

The further laboratory tests after operation showed: White blood count, August 6, 1922, 30,750; August 7, 28,950; August 8, 31,050; August 9, 24,300; August 10, 27,700. On August 11 a differential white blood cell count showed lymphocytes, 5.3 per cent.; large mononuclears, 8.4 per cent.; polymorphonuclears, 86.2 per cent.

The stool was dark brown, soft and unformed. There were no ova or parasites. Occult blood was present.

A blood culture gave no growth.

Culture of urine recovered at cystoscopy gave no growth.

Fluoroscopic examination of chest and stereoscopic X-ray of chest were not notable. No ameba were found on a microscopic examination of feces obtained through the proctoscope.

A nose and throat examination by Dr. M. F. Arbuckle showed an empyema of both sphenoid sinuses and possibly both antra.

Neurological examination by Dr. A. D. Carr showed only changes in the pupils suggesting lues and slight hemorrhages into the fundus of the right retina.

Operation on nose was done by Dr. Arbuckle. The sphenoidal and ethmoidal sinuses were opened. A low grade suppurative process was found in all these cells.

After this operation the white blood cells continued to be between 25,000 and 30,000. Emetin hydrochlorid injections were now begun, using one grain intramuscularly daily for six days and then intermittently for four more injections.

There was a prompt subsidence of the temperature and a return of respiration to a regular normal rate. The tachycardia persisted. The white blood count dropped to 14,000 during the next two weeks. The patient gained twenty pounds. There was a recurrence of the fever after four weeks associated with a white blood cell count of 14,000. Emetin again immediately relieved.

In the next three months there was an increase in weight from 158 to 180 pounds and the patient had remained without symptoms. The white blood cells at the end of that time were 12,400. The urine was normal.

Review of the anamnesis with the patient's mother elicited details of a typical amebic colitis which continued throughout one summer when the patient was four years of age. There were frequent passages by rectum of bloody mucus associated with fecal passages fairly normal in character and in frequency. The mother stated that this "dysentery" was not like that which children usually have, and was not controlled by the medicines given.

During the spring of 1917 the patient had for one week a diarrhea associated with the use of a questionable drinking water. The stools were frequent, thin and watery and contained no mucus or blood. There was no fever. The attack was of short duration. Companions suffered a similar diarrheal attack. This has not been considered as a manifestation of the amebic infection. There was no suggestion of active amebic disease during his army enlistment and while in France.

The case was finally diagnosed as an amebic infection of the liver. Elimination of other possible disease and a perfect therapeutic response to emetin treatment support this diagnosis. Whether the lesion was an abscess or a diffuse hepatitis was not determined. Because of the idiopathic tachycardia the emetin was administered intramuscularly rather than intravenously as the writer¹ prefers.

An amebic infection may persist a period of years, and then may become active in the liver without coincident active colonic involvement as is also shown by Mallory,³ who reports a case of hepatic abscess occurring thirty years after infection. An amebic infection of the liver may be the cause of a high continued fever and leucocytosis. The increasing frequency of amebic infection, as well as this masked manner of its manifestation, makes it

important for consideration in the differential diagnosis of continued fevers. Even when the patient has not lived or traveled in southern countries the possibility of such infection must be considered. The writer² has reported several cases of amebic colitis in patients who had never been outside the city of St. Louis.

The efficacy of emetin treatment is again demonstrated by this case although reports differ. Hodson⁴ reports successful medical treatment of hepatic abscess with emetin. Bressot⁵ in a review of twenty-six cases of operation for amebic abscesses of the liver, advocates operation as soon as the diagnosis is made and disparages the emetin treatment. Impotency of some emetin preparations may account for this difference of opinion. In the administration of the second course of emetin to this case there was a complete failure to secure any clinical response until the source of the emetin preparation was changed and the response was then immediate.

CONCLUSIONS

1. Amebic infection may persist dormant over a long period.
2. It may manifest itself by hepatic involvement without coincident active colonic lesions.
3. Continued fevers and hyperleucocytosis may be caused by hepatic amebiasis.
4. Emetin is efficacious in the treatment of hepatic amebiasis.

423 University Club Bldg.

REFERENCES

1. Larimore: Emetin Hydrochlorid: A Note Concerning Its Intravenous Administration. *The Southern Med. Jour.*, Vol. X, No. 8, p. 633. 1917.
2. Larimore: Endemic Endamebic Dysentery. *Interstate Med. Jour.*, Vol. XXIII, No. 9. 1916.
3. Mallory: Solitary Amebic Abscess of the Liver: Report of a Case Occurring Thirty Years After a Residence in the Tropics. *Jour. Amer. Med. Assn.*, 75:26, p. 1774.
4. Hodson: Treatment of Hepatic Abscess with Emetin. *Jour. Trop. Med. and Hyg.*, London, 24:81, p. 108.
5. Bressot: *Presse Med. Paris.*, 30:757, September 2, 1922. *Abst. Internal Med. and Surgical Survey.*

CANCER OF THE PROSTATE: DIAGNOSIS AND TREATMENT

J. EDWARD BURNS, M.D.

KANSAS CITY, MO.

Thirty-five per cent. of men over sixty years of age have some form of enlargement of the prostate. Twenty to twenty-five per cent. of this number are carcinomatous, according to recent statistics. It is thus seen that cancer of the prostate is by no means an uncommon condition and, unfortunately, most of these patients are seen so late in the disease that an attempt at radical removal surgically is impossible. Once the carcinoma has extended beyond the confines of the prostatic capsule, a radical operation is out of the question, and, of course, this is also true where metastases

are found to be present. The question then resolves itself here, as in all other forms of cancer, into one of early diagnosis, for by this means alone can the cancer be eradicated. If it has become too extensive for radical removal, the proper treatment can be instituted for the arrest of the growth.

Cancer of the prostate is nearly always primary in the posterior lobe or capsule and invades the lateral and median lobes by direct extension. There may be present a co-existent benign hypertrophy, which is sometimes entirely responsible for the urinary symptoms. Metastases occur to the bones in about one-third of the cases; there may also be visceral metastases. Owing to the fact that cancer of the prostate is usually primary in the posterior lobe, it is agreed by practically all urological surgeons that the perineal is the best route for operation.

DIAGNOSIS

The only means of making an early diagnosis is a thorough rectal examination. If, on making a rectal examination, the finger comes into contact with a large, firmly fixed, irregular, nodular mass of stony hardness, there is no doubt as to the existence of cancer of the prostate. Such a finding usually means that the carcinoma has extended beyond the confines of the prostatic capsule and has involved one or both seminal vesicles, the intervesicular plateau, and the membranous urethra, and is inoperable in the sense of complete removal. Any circumscribed or indefinite areas of marked induration in the posterior capsule should make one extremely suspicious of malignancy. These areas should be thoroughly investigated at operation by means of frozen sections if necessary, and a subtotal radical or radical operation done depending upon the extent of the process. The pelvic glands should be palpated on rectal examination to ascertain whether they be involved. When the carcinoma is not too extensive the co-existent benign hypertrophy, if present, can often be made out by the sensation of elasticity of the tissues underlying the carcinomatous growth.

A cystoscopic examination should be made to determine the extent of the intravesical enlargement of the prostate, and also to see if the cancer has extended through to the bladder. The prostatic orifice should be mapped out, the condition of trigone and ureteral orifices noted, the appearance of the bladder wall and the presence or absence of calculi, diverticula, cellules and tumors determined.

TREATMENT

Having now established a positive diagnosis of carcinoma of the prostate, the next thing

to be considered is the kind and the extent of the treatment to be used. The treatment indicated depends upon the extent of the cancer. It is either non-operative, operative, or a combination of both. Under non-operative treatment must also be considered the pre-operative treatment such as the relief of urinary retention by catheter drainage, the renal functional studies and the use of urinary antiseptics.

NON-OPERATIVE TREATMENT

The presence or absence of residual urine should first be determined and depending upon the amount found, interval catheterizations or continuous catheter drainage should be instituted. A small soft rubber catheter should be used either alone or introduced upon a stylette. If a retention catheter is left in place, the bladder should be irrigated daily with some weak antiseptic solution and the catheter be changed every third day.

Renal functional tests should be made every third day. Phenolsulphonphthalein given intramuscularly has been found most satisfactory for these studies. On admission the patient should have a 'phthalein test, the appearance time and the amounts excreted in the first and second hours should be noted. Normally the appearance time is ten minutes, and forty to sixty per cent. is excreted in the first hour and from ten to twenty per cent. in the second. Under catheter drainage the 'phthalein output will gradually increase in amount until a maximum of excretion is reached after which time it will remain the same. Then and only then is it safe to undertake an operative procedure.

If the 'phthalein output be exceedingly low, less than twenty-five per cent. total for two hours, blood urea estimations should be done every third day until the blood urea content comes down to normal (.2 to .4 gms. per litre). If a suprapubic cystostomy has been done previously for drainage, blood urea estimations are the only true index of renal functional activity. 'Phthalein estimations are inaccurate because there is generally leakage around the suprapubic drainage tube or it is impossible to remove all the urine containing 'phthalein.

Water should be forced on these patients, one glass being given every hour in order to promote free diuresis.

No satisfactory urinary antiseptic has been found. Of those we have, urotropin or methylene blue are very good and should be administered daily. Acid sodium phosphate and sodium benzoate are also useful. Lately acriflavine and mercurochrome have been found excellent for local use.

If any cardio-renal, cardio-vascular or vascular complications be present, a medical consultant should be called and their degree and

extent be determined. The proper treatment can then be carried out simultaneously with the preoperative urological treatment.

RADIUM THERAPY

The use of radium in the treatment of cancer of the prostate has been found very beneficial. It may be administered either through the rectum or urethra or placed directly into the substance of the prostate by means of long perineal needles. Any one or a combination of all three of these methods may be used.

Radium is best applied during the pre-operative treatment of the patient and in some instances has been found to cause sufficient shrinkage of the gland to relieve urinary retention entirely. It has been found that small doses of radium applied frequently over a given period of time, say six weeks, is much more effective than massive doses applied infrequently. Radium causes a shrinking and softening in the mass of carcinomatous tissue, so that often, at the end of a series of treatments, one would think on rectal examination that the patient had only a well-marked chronic prostatitis and seminal vesiculitis. After its use, the cancer cells are found in various stages of degeneration with pale, swollen, granular nuclei or shrunken pyknotic nuclei with disappearance of cytoplasm. There is also a marked increase in fibrous tissue, this latter finding being very evident at operation. Unless there is a marked reaction on the part of the rectal or urethral mucous membranes, the treatment is usually carried on over a period of six weeks. One hundred milligrams in a suitable capsule and carrier are placed in the rectum over the carcinomatous mass and allowed to remain in position for one hour. These treatments are given every other day and are mapped out on a suitable chart to prevent overlapping of areas. At every third treatment, the radium is placed in the prostatic urethra. It is thus seen that the average dose given in the six weeks would be about 1,800 mg. hours. If the patient can tolerate it more can be given. Should there be a marked reaction on the part of rectal or urethral mucous membranes, all radium treatment will have to be discontinued until this has subsided. Needles of radium are placed directly into the substance of the prostate gland through the perineum under local anesthesia, the finger being inserted into the rectum to act as a guide in directing the course of the needles. Needles containing radium itself are preferable to those containing the emanations. After a prostatectomy capsules of radium are placed in either of the lateral prostatic cavities and allowed to remain in place for from six to eight hours. When the patient has entirely recovered from the operation, another series of rectal and ure-

thral treatments should be instituted. After this the patient should return for observation every two or three months and if there is any increase in the growth another series of treatments should be begun.

X-RAY THERAPY

This is a very helpful adjunct to radium therapy and should always be given by a thoroughly competent roentgenologist. Exposures should be given to the sacral, perineal and suprapubic regions, these regions having previously been carefully mapped out so as to avoid overlapping of exposures. Lately the use of the high-powered X-ray machine has greatly advanced this form of therapy. X-ray treatment is especially valuable in the treatment of metastases. Its use is also indicated after any operative procedure to kill off any stray cancer cells that may have been spread around during the operation.

OPERATIVE TREATMENT

There are three different forms of cancer of the prostate in which operative intervention is indicated: first, those cases in which it is thought that the cancer can be completely removed; second, those having a co-existent benign prostatic hypertrophy which is causing retention of urine; third, the cases of extensive carcinoma involving seminal vesicles and other adjacent tissues which have urinary retention.

The first class includes both the cases in which practically the whole prostate is involved but the cancer has not extended beyond the prostatic capsule, and those in which there is a circumscribed area of cancer in the posterior lobe or capsule. In the first instance complete removal can best be accomplished by Young's radical perineal prostatectomy in which the whole prostate, internal sphincter and seminal vesicles and lower portion of the trigone are removed en masse, and the bladder sutured to the membranous urethra. This operation gives the best chance for complete removal and when carefully done there is practically no interference with urinary control. In the second instance, the posterior capsule is completely exposed in Young's perineal prostatectomy and the cancer area together with a generous margin of healthy tissue can be excised completely. The complete excision can be confirmed by frozen sections during the operation. This is called a subtotal radical operation. The absence of metastases should be absolutely proven before these operations are done. In these two types there is often very little if any residual urine, and the operation is done here for complete removal of the cancer whereas in cases of the type of two and three, the operation is done mainly for the relief of urinary retention although as much

of the cancer as possible is removed at the same time.

In cases of type two, the usual perineal prostatectomy of Young has been found extremely satisfactory. In this operation the posterior lobe is completely exposed and the usual lateral incisions made into it. Through these incisions the hypertrophied lobes together with as much of the carcinoma as possible are removed. After this has been done, a capsule of radium (100 mgs.) is placed in each lateral cavity and allowed to remain from six to eight hours. In addition, the lateral cavities are packed with gauze and a drainage tube placed in the bladder through the urethral opening. The wound is then closed in the usual manner.

In type three, the same operation is done as in type two, but the operation is, as a rule, made more difficult because the lateral lobes have been more extensively invaded by the carcinoma and are much more adherent. The radium is applied after removal of the lateral lobes as in type two. In both of these types post-operative radium treatment per urethra and per rectum should be instituted within a reasonable length of time, from six weeks to two months. As an example of this last type, there is a patient under my treatment for the past three years. During this time he has had two conservative perineal prostatectomies for the relief of obstruction and lately a suprapubic cystotomy had to be done for the same purpose. He has also had numerous series of radium treatments. When first seen this patient had a very extensive carcinomatous involvement of both prostate and seminal vesicles and it seemed that he could only live a relatively short time. However he has gained in weight and improved markedly in kidney function after each operation. It should always be remembered that these patients often die of renal insufficiency due to the obstruction by the carcinoma and the consequent back pressure on and infection of the kidneys rather than from the carcinoma itself.

Again, it is of the greatest importance to operate and relieve the obstruction in these patients, even in the presence of metastases. Such a case lived two years after a conservative perineal prostatectomy, even though operation had been refused him by others and he had been told that he could only live six months.

SUMMARY

Early diagnosis of cancer of the prostate is most important, for by this means alone is its complete extirpation possible. As an early diagnosis can only be made by rectal examination, this should always be included in every complete physical examination, especially in men over fifty years of age. In this way can-

cer will often be found before any symptoms are present.

In cases of very extensive cancer of the prostate, where it has extended beyond the capsule of the prostate, radium and X-ray treatment will often cause sufficient shrinkage of the gland to relieve urinary retention.

If this treatment does not relieve the retention, then the obstruction should be removed by a conservative perineal prostatectomy. Radium should be used before the operation, at the time of operation and afterwards if it is necessary.

The perineal route is the best method of attack in any operation for cancer of the prostate, because the cancer usually begins in the posterior lobe and is generally extravesical.

X-ray treatment is a most valuable adjunct to radium in the treatment of these cases and should always be employed for metastases. This treatment should only be given by a competent radiologist.

These patients sometimes die of uremia instead of from the cancer itself. This is due to back pressure and infection of the kidneys which is caused by the urinary obstruction from the cancer. It is, therefore, most important to see that urinary retention is relieved.

403 Waldheim Bldg.

CLINICAL HISTORY AND SERIAL PLATE EXAMINATIONS, IN THE DIFFERENTIAL X-RAY DIAGNOSIS OF INFLAMMATORY LESIONS OF THE CHEST*

L. R. SANTE, M.D.

ST. LOUIS

The advent of more precise technical methods has advanced present day chest radiography to a place in which it is essential to the proper understanding of the pathology present. In recent years instantaneous radiography and bedside examinations have made acute inflammatory conditions of the chest amenable to this method of examination. Serial radiographic examinations, or radiographs taken at intervals of a few days or weeks, as the case may require, are valuable in following the course of acute inflammatory diseases of the chest and directing treatment. This method of examination has been employed in St. Louis City Hospital No. 1 for the past three years with great satisfaction. By this method a permanent record of the previous stages of the disease is obtained which is most helpful in determining its progress; re-examination of the radiographs after the termination of the case give valuable information which can be utilized to advantage when

*Read before the Trudeau Club of St. Louis, January 9, 1923.

similar cases are encountered again; likewise, information so obtained may permit a much earlier diagnosis of the pathology present; and, lastly, the prognosis may be adjudged with a greater degree of certainty.

The picture produced by such a series of

radiographic examinations is usually conclusive and the diagnosis clear. Occasionally a case is encountered in which some doubt as to the diagnosis exists after examination of the radiographs. It is the occasional mishap which renders the diagnosis of all cases hazardous

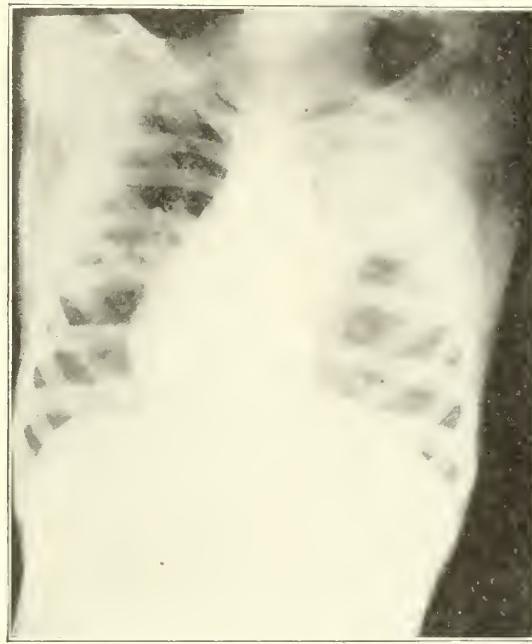


Fig. 1-a. Right upper lobe consolidation from acute pneumonic tuberculosis. There is no way in which this condition can be differentiated from true lobar pneumonia.

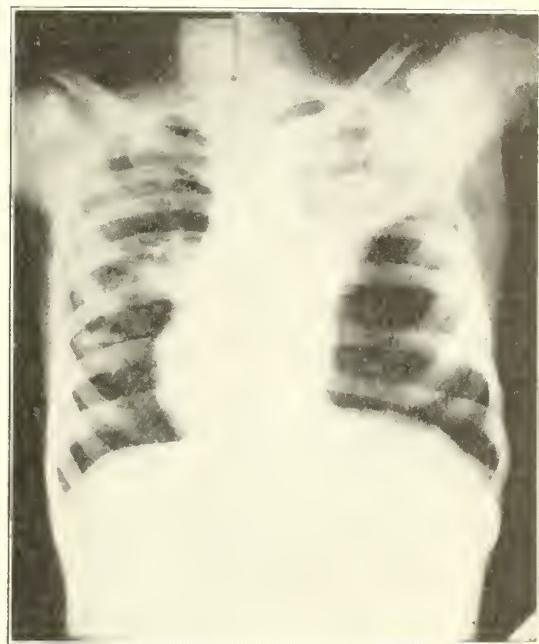


Fig. 1-b. Several months later. Slight resolution and beginning cavity formation apparent. Lobar pneumonia of inflammatory type should be completely resolved within two weeks.

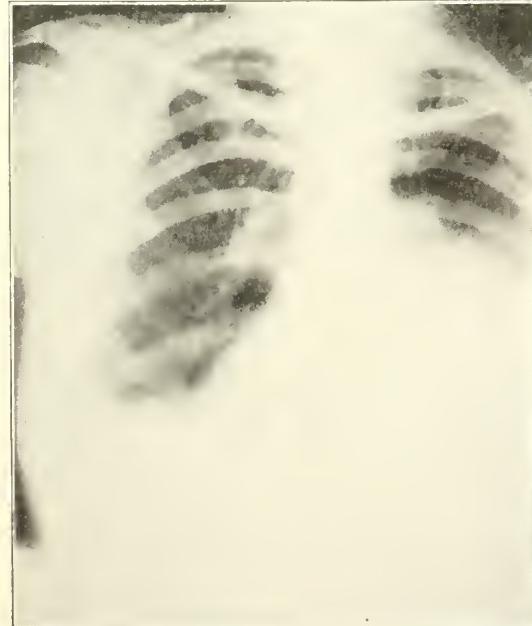


Fig. 2. Metastatic hypernephroma, right lower lobe, resembling fluid or fluid in association with lower lobe pneumonia. Confirmed by autopsy.

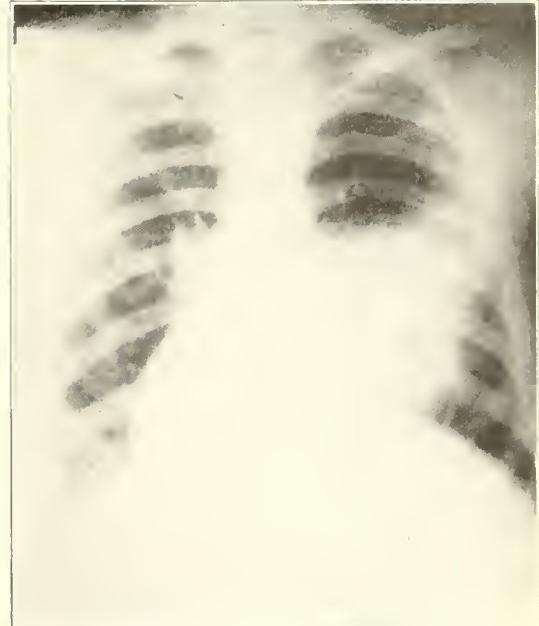


Fig. 3-a. Acute consolidation in right hilus region with abscess cavity apparent on the third day of illness.

without due consideration of the clinical history. No attempt should be made to diagnose a chest condition from the radiograph alone (especially where a single examination is all that is available) without due consideration of the clinical history. With physical signs we are not so much concerned; that is the realm of the clinician. The clinical symptoms and history are essential, however, for the proper diagnosis of chest conditions.

Mindful of these precautions let us consider briefly the points in differential diagnosis of inflammatory diseases of the chest. Radiographic examination of the normal chest reveals, within the bony framework of the ribs, a medial opaque shadow produced by the superimposed shadows of the spine, mediastinal structures and the sternum. In the lower part the cardiac shadow extends outward on the left side. On either side of the medial shadow the lung fields appear as dark areas on the plate on account of their radiotranslucency. Peripherally the lung fields are limited by the chest wall; below by the two halves of the diaphragm. It is with the appearance of the lung fields that we are most concerned in this presentation. Within the dark area of the lung fields denser, irregular shadows appear at the hilus region on either side, caused by the convergence of numerous large blood vessels and bronchi, and by the clusters of hilus lymph nodes. Radiating outward from the hilus toward the periphery these linear markings become smaller in calibre and more intricate in network until, in the outer zone of the chest, they have disappeared from radiographic vision. These markings are produced by the bronchi and their branches with their accompanying blood-vessels and lymphatics, together with their surrounding fibrous tissue framework. On account of their origin these markings are often spoken of as peribronchial markings.

The lung fields can be divided into three zones: (1) the inner, containing the hilus shadow; (2) the middle, containing the peribronchial markings of the larger branches; and (3) the outer, containing only the finer terminal markings of the smallest bronchioles. Any encroachment of the hilus markings upon the middle space, or any extension of the peribronchial markings into the outer zone should be considered as pathological. While this arbitrary method of zoning may be considered as sufficient to establish the presence or absence of pathology in the chest, it has required an extensive observation for the determination of the appearance produced by various disease processes.

An increase in the hilus shadow may be caused by the pathological involvement of any or all of the structures of which it is composed.

Enlargement of the hilus nodes from whatever cause, be it regional lymphatic involvement from an inflammatory process in the lungs; a tuberculous adenitis; or lymphatic enlargement incident to lues, lymphatic leukemia, Hodgkin's disease, or malignancy. Enlargement of the hilus shadow from any of these causes may, under certain circumstances, be so similar in appearance as to render an accurate diagnosis impossible.

Calcareous deposits within the glands are usually characteristic of tuberculous involvement, it is true, but this represents only a terminal process. The diagnosis in the intermediate stage before calcification has occurred rests for its accuracy purely upon the frequency of the infection in this location, not upon any characteristic appearance. Inflammatory lesions of the lungs and bronchi, causing adenopathy of the hilus glands, usually produce an associated increase in the peribronchial markings of the affected area. It is likewise true, however, that the dissemination of the tuberculous process by the bronchi may be indistinguishable from an inflammatory process. Consolidations in the hilus region are often distinctive in the radiograph, but often, without the aid of the clinical history, it is impossible to differentiate from a single radiographic examination between hilus pneumonia, beginning lobar pneumonia, tuberculous hilus consolidation, hilus abscess formation, and malignant invasion of the lung from esophageal carcinoma. The diagnosis which is practically impossible without the aid of the clinical history and symptoms often becomes quite easily established when the Roentgen findings are viewed in the light of this clinical evidence. Serial radiographic examinations where no more than two or three plates taken at intervals are available, are often sufficient to indicate the cause of the disease.

We have seen that the fine network shadows extending into the lung fields from the hilus are due to the bronchi, their accompanying blood vessels and lymphatics and to the surrounding connective tissue framework. It is evident, therefore, that any lesion which will alter the structure of any of the component parts will cause an alteration in the character of the shadow cast, causing an increase in size and density of the shadows in the radiograph. Any lesion causing engorgement of the lymphatics, such as infection; any condition causing engorgement of the blood-vessels, such as passive congestion; or any chronic inflammatory process, such as chronic bronchitis, resulting in a thickening of the fibrous framework, will result in an increase in the peribronchial markings. It is true that peribronchial markings extending into the apices are usually of tuberculous nature, but innumerable cases of

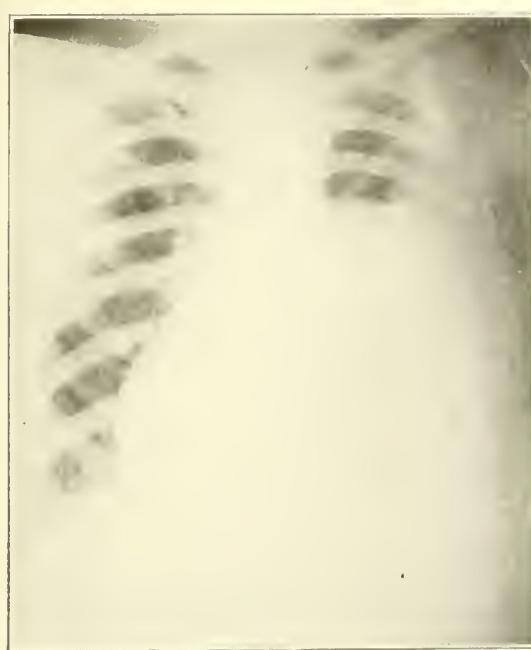


Fig. 3-b. Extension of consolidation and inflammatory reaction about the abscess to involve entire lower portion of right lung. At this stage condition could not be differentiated from fluid. However, a and c of Fig. 3 represent the condition a few days before and a few days after rupture of the abscess and discharge of pus through a bronchus.



Fig. 3-c. Marked decrease in size of the pneumonic consolidation within an incredibly short time after spontaneous evacuation of pus.

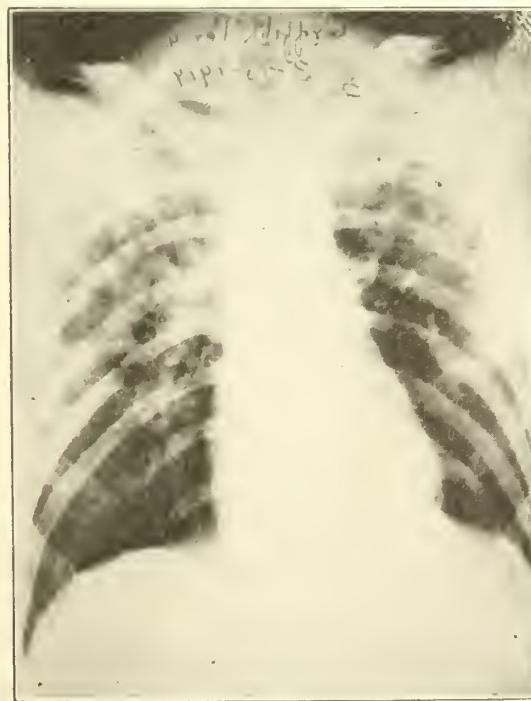


Fig. 4-a. A broncho-pneumonia of the inflammatory type involving the upper lobes. Could not be differentiated from tuberculosis.

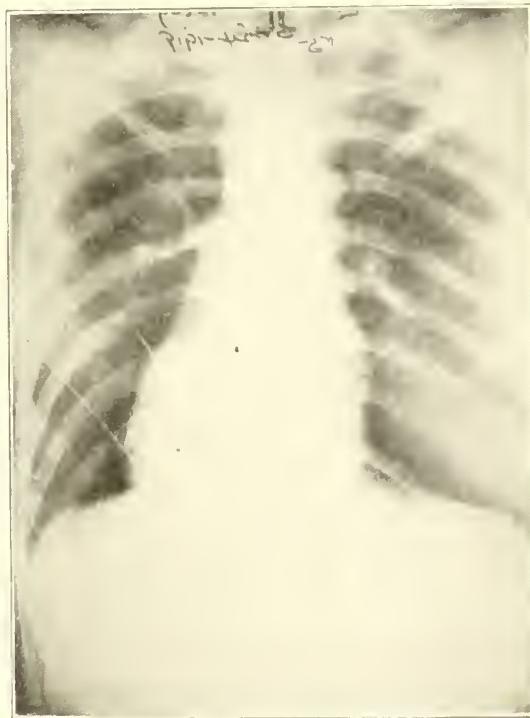


Fig. 4-b. Resolution after six weeks.

such invasion have been encountered during influenza and acute bronchitis. In cardiac insufficiency the radiographic appearance of the peribronchial increase and its predominance in the lower lobes is often very distinctive, but occasionally the picture produced is not distinctive of either a congestive or an inflammatory lesion. The clinical history is often of great aid in differentiating these conditions, especially in congestive and cardiac disease. Serial radiographic examinations are most helpful in differentiating the tuberculous from the inflammatory lesion, subsequent radiographic examination revealing the retrogression of the inflammatory process and the persistence of the tuberculous lesion.

Actual consolidations in the lung, likewise, often require the aid of the clinical history and serial radiographic examinations for their proper differentiation. Consolidations in the chest may be classified, according to their size and conformity, into smaller rounded infiltrations and larger massive consolidations involving one whole lobe or a large part thereof. Infiltrations are most frequently encountered in tuberculosis and bronchopneumonia, varying from the size of a pinhead to about one centimeter or so in diameter. Large irregular areas of consolidation result from the coalescence of these smaller areas of infiltration. It is true that tuberculous involvement is most predominant in the apices and upper lobes, and that bronchopneumonia is most frequently in the lower lobes, but frequently cases are encountered where the chief involvement of a tuberculous lesion is in the lower lobes and occasionally even bronchopneumonia invades the upper lobes with little if any involvement of the lower lobes. It must also be borne in mind that other extraneous causes may often confuse the diagnosis. Infiltrative deposits in the lungs of hard rock miners, marble workers, and sand blasters, simulate so closely at times both of these conditions that an accurate diagnosis is rendered impossible without consideration of the clinical history and serial radiographic examinations. Consolidation involving an entire lobe may likewise depend upon the clinical history and serial radiographic examination for its ultimate solution. The extent of such consolidations and the lobe involved can usually be determined without difficulty, but the nature of the causative agent may remain obscure without due consideration of the clinical history and the subsequent course of the disease, as seen in further radiographic examinations. Lobar consolidations are most frequently of inflammatory origin, as in lobar pneumonia, but numerous cases have been encountered where the lobar consolidation was due to tuberculous pneumonia. The clinical history and serial radiographic exami-

nations are of greatest importance in the differentiation of these conditions.

Lobar consolidations of the lower lobes must often be differentiated from pleural effusion. This is occasionally very difficult. Obscurity of the costophrenic angle and displacement of the mediastinal structures is not always a reliable criterion. The writer has encountered three cases of complete consolidation of the lower lobe from metastatic hypernephroma which could not be differentiated from lobar pneumonia or pleural effusion from the single radiograph alone but which, when considered in the light of the clinical history, were more readily understood. The development of lung abscess, either following pneumonia or as a primary lesion, can be followed by serial radiographic examination and by this method the diagnosis can often be made as much as 14 days before the condition is suspected from the physical findings. Pleural effusion, especially when localized, often presents great difficulty in diagnosis from consolidation, but occasionally the history of a previous infection or the simple history, "stab wound of the chest," may suffice to clear up an otherwise obscure diagnosis and to render clear a most confusing picture.

From this brief consideration of some of the more common inflammatory conditions of the lung, it must not be inferred that no conditions are sufficiently characteristic to render a correct diagnosis possible without consideration of the clinical history. I merely wish to show from this consideration that the occasional case, which eludes our judgment, may become our downfall in any given instance even where the radiographic picture appears most characteristic. It is hazardous, therefore, in any instance to express a positive opinion as to any lesion without a previous consideration of the clinical symptoms. Even this at times is insufficient to determine the diagnosis, and serial radiographic examinations must be resorted to, the ultimate diagnosis being deferred for a short time until the course of the disease depicted in subsequent radiographs gives the clue to the causative condition.

316 Metropolitan Bldg.

INFECTION AND RESISTANCE IN TUBERCULOSIS*

SELIG SIMON, M.D.

ST. LOUIS

Ever since Koch proved that tuberculosis of any part of the body was caused by a germ, which he called the tubercle bacillus, investigation has been going on in laboratories

*Read before a lay audience under the auspices of the Tuberculosis Society of St. Louis, January 2, 1923.

throughout the whole world, for the purpose of determining just what takes place between the cells of our body and the germ, once it enters our bodies.

Many conceptions have been brought forward in the more than forty years since Koch's famous discovery to explain just how this interaction between bacillus and body cells takes place. And today there are still differences of opinion. One can easily understand how so complex a subject can lead to different impressions, and how one man or school starting on a certain theory and finding no flaw in its logical development, adheres steadfastly to it, and even breaks down opposing theories for the purpose of strengthening that position.

It is perhaps to the credit of medical men to be told that "no two of them agree on matters medical," because there is at least independent thought implied in the thrust. Today the generally accepted belief is that infection of humans with tubercle bacilli comes from two main sources: sputum of tuberculous individuals and milk from tuberculous cattle. Contaminated milk is considered by many to be the major source of infection in infants and young children, and no doubt it does play a large part in the tuberculosis of infancy. But after the age of two or at most three years, it is extremely doubtful as to whether it plays a major part, and as a matter of fact it is perhaps of minor importance from this age period on.

Careful statistics gathered by reliable investigators in all the large cities of the world show that the average incidence of tuberculosis in infants up to 2 years of age is about 10 per cent. and that the average incidence between 3 and say 10 years of age is about 45 per cent. to 55 per cent., or, in other words, that time in a child's life when milk ceases to be the main source of its food and it comes in contact with the outside world and the ground. The remaining percentage of infections takes place during the second decade of life so that by the time all civilized individuals reach maturity they are infected.

You no doubt know that in those uncivilized communities where stocks are virgin and uncontaminated with civilization, tuberculosis is practically unknown, but that as soon as civilized man plants the tubercle bacillus in this virgin soil, the disease once implanted sweeps through these aborigines like a plague.

Routes of Infection.—The tubercle bacillus enters the body in the large majority of times by way of the nose and throat. Many of us believe that the way to escape infection is to avoid contact with a known tuberculous individual. But contact is not essential to infection with the tubercle bacillus. You can take a culture or growth of these germs and place

it on the unbroken skin or upon intact mucous surfaces and no harm will ensue. As a matter of fact most of us have tubercle bacilli planted on the lining membranes of our noses and throats and so long as they remain *ON* the surface they can do no harm. It is only when because of some slight injury to the cells making up the surface layer of these lining membranes that the germs are able to get into the tissue and cause injury. Just as soon as this happens the germ comes in contact with what are known as lymph spaces, and it is the lymphatic system of the body that is most concerned with the tubercle bacillus.

If we will remember that throughout our bodies, immediately under the surface layer of the skin and lining membrane, we meet with the lymphatic system, and that every organ and tissue of our bodies contains its lymphatic system, you will appreciate how the tubercle bacillus can find its way from the site at which it enters to the remotest parts of the body, set up infection and perhaps disease.

In an effort to explain the course taken by the tubercle bacillus once it has gained entry into the body, it might perhaps be well to follow the sequence of events from the experimental side.

If you inject a small number of tubercle bacilli into the groin of the guinea pig and follow the course of the injection from hour to hour and day to day, you can demonstrate the following: "About 6 hours after the injection, the lymphatic glands in the region of the injection area will show evidences of injury. Several days later the glands in the lower part of the abdomen will begin to show signs of injury. In the course of a week the next chain of glands higher up will show the same changes and eventually the glands that drain the lymph from the lungs will likewise show injury.

If we transfer these phenomena to human beings who receive their infection in a natural way, the course of events that take place is about like this: Tubercle bacilli are breathed into the nose where because of some injury to the lining membrane, such as the result of a cold or of a scratch or some other cause, these germs get under the surface layer of cells and come to lodge in lymph spaces. Because they are living self-propagating parasites, they set up irritation and this irritation induces an increased activity in certain cells of the body and these cells proceed to where the tubercle bacilli are lodged to give them battle and bring about their destruction, or enclose them in such a way as to render their presence harmless.

The lymph spaces empty into tiny lymphatic vessels and all along the path of these vessels, which gradually increase in size as they

course toward the center of the body, we find either collections of lymphoid cells or lymphatic glands, whose purpose is to act as a protecting mechanism and prevent the further progress of harmful material into the body. Tubercle bacilli have no power of moving themselves. They are carried along through the body by the lymph and blood streams. If then the number of germs that gain entry into the body at any one time happens to be greater than can be handled by the protective cells at or near the site of entry, they will be carried along by the lymph flow until they are blocked by lymphatic glands located further in the body.

We can readily see how the germs entering the body from time to time during the course of our lives will pass the last barrier of lymph glands and proceed deeper and deeper until they are finally deposited in the venous blood of the general circulation. From here they are borne through the right side of the heart, and carried with the blood stream by way of the pulmonary artery to the lungs. Here the venous blood is spread out over the lungs by means of blood vessels that divide into smaller and smaller branches, and the tubercle bacilli that in their migration through the body were compelled to pass through the pulmonary artery, are now spread out over the enormous surface of these exquisitely fine blood vessels of the lungs. The germs must have the means of getting through the wall of these blood vessels, and as soon as they do this they come at once in contact with the lymph spaces of the lung.

The lymph drainage in the lung is toward the lung root where all lymph drains into lymphatic glands, known as tracheobronchial glands.

From this we see that all tubercle bacilli that enter our bodies, and are not checked and held fast in the earlier course of their migration, reach these tracheobronchial glands. In other words the tracheobronchial glands constitute the points where all substances that fail to be arrested elsewhere in our bodies eventually must come to lodge.

Now these germs that were stopped in the course of their journey, as a result of the reaction taking place between them and certain of our body cells, bring about one of two conditions. If the number of germs is not too large the end result of the struggle will be a tiny speck of matter, consisting of germs surrounded by a capsule or covering of restraining cells and cell products. This tiny speck is known as a tubercle or tiny tumor, so that in the majority of instances it is difficult to see with the low powered microscope. On the other hand, if the germs are not held in check they multiply rapidly and destroy more and more healthy tissue, resulting in disease of

the part affected and, unless again checked, extension and finally death. Very often several of these tiny specks or tubercles fuse together so that they can be seen by the naked eye or with the aid of the hand lens, and these are spoken of as a conglomerate tubercle.

You will understand then that the difference between infection and disease depends entirely upon the holding in check of the tubercle bacillus in this little speck of matter or tubercle. That is why it is so difficult to recognize early tuberculosis, or tuberculosis at the time when the tubercle bacilli break through their restraining wall, multiply, and set up lesion or disease. That is also why, at an autopsy carefully and exhaustively performed, we may find numerous tubercles where the person has died of some other illness without ever having shown signs of tuberculosis. It is also true that as we examine X-ray pictures of the lungs of people for suspected tuberculosis or conditions other than tuberculosis, we find scattered through the lung substance here and there, tiny specks which represent nature's walling off process.

I fully appreciate the difficulty of trying to explain in a few words so complex a subject as infection in tuberculosis and the sequence of happenings by which infection is converted into disease, but I cannot leave this phase of our study without some explanation of why tuberculosis of the lungs most frequently begins, or presents as a disease process in the upper lung.

Because of the continued insult of the tracheobronchial glands, there results a sluggishness of lymph flow toward these glands, and this sluggishness is necessarily greatest in that part of the lung where movement is least, namely its upper portion. This means that the longer tubercle bacilli take in being transported from the substance of the lung through the medium of the lymphatic system of the lung to the ultimate converging point, the tracheobronchial glands, the greater is the opportunity for setting up disease, and while it is true that recognizable tuberculosis is found in the large majority of instances in the upper portions of the lung, I believe that the process primarily begins in the tracheobronchial glands and extends outward and upward, and not as is commonly believed, at the tip or apex of the lung and extending downward.

Resistance.—If what has been said before holds true, then resistance to tuberculosis cannot be understood to mean what so many of us have fixed in our minds. Neither can it mean that so-called strong constitutions or sturdy ancestral stock play any great part in this disease.

For example, we have a man who as far as he knows is perfectly well; nothing about him

gives the slightest indication of illness. He has recently passed a successful examination for life insurance; to the best of his knowledge he is perfectly well. He is keenly interested in "Bridge." One evening he entertains some friends and, wrought up by the close score and keen rivalry, he suddenly begins coughing up blood that unmistakably comes from the lungs. He is having a pulmonary hemorrhage which is positively diagnosed as tuberculosis. Did this game of "Bridge" lower his resistance to tuberculosis?

Another fellow equally well, in robust health decides some pretty Saturday afternoon to take an outing on the Meramec. He gets into his canoe and paddles up stream for a mile or two and at the end of what he considers a perfect day of sport, he starts home and begins to cough. In 24 hours he is hovering between life and death from what his physician has called an acute, widespread or disseminated tuberculous bronchopneumonia. Did this moderate indulgence in outdoor sport precipitate a perfectly healthy man into the jaws of death because his resistance to tuberculosis gave way?

A perfectly healthy matron who has borne healthy children without the slightest evidence of disease, is discovered to be suffering from tuberculosis during the 3rd or 4th month of her present pregnancy. Shall we say that this woman became pregnant at the wrong time and that as a result her resistance to tuberculosis gave way? I think not. I believe a much more plausible explanation would be about as follows:

In the first instance, the man who felt that he was perfectly well but wound up with a hemorrhage, had one of these fused or conglomerate tubercles, the wall or restraining barrier of which was slowly melting away (probably the result of the strain and stress of modern life), and this softening tubercle lay in contact with a small blood vessel whose wall it broke through, resulting in the hemorrhage.

In the second case a perfectly healthy man, whose tubercle without his knowledge was likewise slowly softening so that the circulatory exchange permitted the tubercle bacilli to multiply rapidly, thereby gaining the mastery, was in close proximity to a bronchial tube of fairly large calibre, so that when eroded innumerable bacilli were cast out and immediately aspirated into the remotest portions of the lung, resulting in a tuberculous bronchopneumonia.

In the case of the expectant mother we believe that the added strain thrown on her body as a result of her pregnancy resulted in a yielding of the benign or innocent tubercles and their conversion from infection to disease.

It is within the province of all of us to become speculative, and speculation is especially fascinating in a study of tuberculosis. But I would consider it far more helpful to a proper understanding of the underlying causes in this disease if all of us stood on common ground, and in concluding may I suggest the following as ground that seems sound and logical?

Tuberculosis is a universal infection.

Tuberculosis is not hereditary.

The main source of infection is sputum of tuberculous individuals.

The incidence of infection is greatest between the ages of 3 and 10 years.

Superficial contact with tubercle bacilli need not be followed by infection.

In order to become infected the germ must get *into* tissue.

Evidences of infection may be numerous in an individual who may live to a ripe old age without ever having the slightest ill effect from such infection.

Infection in tuberculosis is brought about in the body through the medium of the lymphatic system.

In tuberculosis of the lungs the disease begins in the tracheobronchial glands and spreads to the upper portion of the lung.

Resistance to tuberculosis is in a large measure mechanical. The conversion of innocent infection into manifest or recognizable disease is dependent on factors largely beyond our control. The eradication of tuberculosis is the eradication of the tubercle bacillus.

Prevention of tuberculosis is today only relative.

625 University Club Bldg.

A RESUME OF SYMPTOMS AND SIGNS IN SOME OF THE PRINCIPAL ENDO- CRIN DISTURBANCES

O. P. J. FALK, M.D.

ST. LOUIS

Feeling that an outline and detailed description of some of the rather confusing features that characterize endocrin dyscrasias would serve to clarify a good many uncertainties, and materially assist in leaving a more clean-cut impression of what is to be expected in certain endocrin states, I am presenting the following:

THYROID:

I. Hyposecretion.

1. Preadolescent (Cretinism).
 - a. Delayed developmental characteristics.
 1. Walk, talk, stand-up, etc., late.
 2. Late tooth eruption.
 3. Under-development of all bones.

- b. Retarded mental development.
 - c. General symptoms.
 - 1. Thick tongue, pouting lips.
 - 2. Lordosis.
 - 3. Pot-belly, usually with umbilical hernia.
 - 4. Skin thick and dry.
 - 5. In the female early onset of menstruation (before thirteenth year usually).
 - d. Decreased basal metabolism.
 - 2. Post adolescent (myxedematous type).
 - a. Subjective signs.
 - 1. Failing memory and special sense acuity.
 - 2. Loss of physical strength and mental vigor (frequently).
 - 3. Somnolence (during day especially).
 - 4. Constipation.
 - 5. Increased weight.
 - 6. Decreased sweating.
 - 7. Cold extremities and general feeling of subjective cold.
 - 8. Susceptibility to foreign protein intoxication (hives, urticarias, etc.).
 - b. Objective signs.
 - 1. Lardaceous hue of skin (pasty yellow).
 - 2. Supraclavicular and posterior cervical fat padding.
 - 3. Padding on back of hands and feet.
 - 4. Generalized subdermal infiltration.
 - 5. Skin dry and harsh; hair fine, poorly nourished and thin.
 - 6. Narrowed palpebral fissures and characteristic infiltration of lids with puffing of face.
 - 7. Bradycardia (frequently subnormal temperature).
 - c. Special signs.
 - 1. Decreased basal metabolism.
 - 2. Blood pressure changes, usually increased, due to vascular infiltration. Is decreased in asthenic type of hypothyroidism. (Vide infra.)
 - 3. Increased sugar tolerance.
 - 3. Atypical type. Practically no change except decreased basal metabolism and few subjective symptoms, such as cold extremities and general loss of mental and physical tone, very frequently unrecognized, and still more frequently associated with insufficiency of other glands of internal secretion, probably fitting in with Falta and Meyers description of pluriglandular sclerosis.
 - II. Hyperthyroid.
 - 1. Subjective signs.
 - a. Paroxysmal tachycardia.
 - b. Palpitation and dyspnea.
 - c. Nervousness and emotional instability.
 - d. Insomnia.
 - e. Increased sweating, especially in axilla and palms of hands.
 - f. Loss of weight and strength (without loss of appetite). Ready exhaustion.
 - g. Tremor.
 - h. Enlargement of thyroid gland (usually).
 - i. Diarrhea attacks (tendency to).
 - j. Intolerance to heat.
 - 2. Objective signs.
 - a. Skin moist, thin and elastic.
 - b. Hair luxurious, scalp oily.
 - c. Pulse rate increased, frequently slight increase of temperature.
 - d. Disappearing systolic murmur at base of heart (frequently).
 - e. Exophthalmos in certain types of hyperthyroidism with other eye signs.
 - f. Tremor.
 - 3. Special signs.
 - a. Increased basal metabolism.
 - b. Decreased sugar tolerance.
 - c. Increased pulse pressure (due to enhanced vascular pulsation).
- GONADS
- I. Gonad Insufficiency.
 - 1. Preadolescent (partial) "Eunochoidism."
 - a. Increased relative proportion of the long bones shown by increased lower measurement and long slender hand.
 - b. Increased span length.
 - c. Eunochoid facies with receding chin, prominent narrow nose, hatchet face. Long, thin stature with "phthisical chest" (so-called), enteroptotic abdomen, etc.
 - d. Occasional female distribution of hair in male and minimum secondary sex characteristics.
 - e. In the female a tendency to imperfect menstrual periods and dysmenorrhea.
 - f. Puffing upper lids (occasionally).
 - g. Prominent upper central incisors.
 - 2. Pre-adolescent (complete, true eunuch).
 - a. Symptoms about as in partial but generally emphasized, *no* secondary sex characteristics.
 - b. Complete lack of libido.
 - c. Imperfect development of sexual organs.
 - d. No tendency to development of obesity such as is characteristic of the post-adolescent gonad insufficiency.

3. Post-adolescent.

- A. Surgical (degree of symptoms vary with degree of tissue removed).
 - 1. Nervous and emotional instability.
 - 2. Tendency to anxiety and compulsive neuroses (Timme).
 - 3. Characteristic obesity, generalized distribution with special tendency to trochanteric padding.
 - 4. Vasomotor disturbances, such as hot and cold flashes, etc.
 - 5. No atresia of the sexual organs in the male or female.
 - 6. Increase of weight (frequently). Tendency to trochanteric padding.
- B. Natural (menopause) symptoms same as above, but usually less abrupt and more insidious in onset.

II. *Gonad Hyperactivity.*

Probably the etiological factor in "macrosomia genito-præcox" in which there is a precocious development of the primary and secondary sex characteristics before puberty.

PITUITARY

I. *Anterior Lobe.*

- A. Function: Bony growth, sexual development, hair and skin pigmentation.
- B. Hyposecretion.
 - 1. Pre-adolescent: Under-development of all bones (type enpetite). Under-development of sexual organs; disturbances in the female (delayed onset, imperfect periods, or dysmenorrhea).
 - 2. Post-adolescent:
 - a. Skin pigmentation (chloasmic).
 - b. Retrogressive sexuality.
 - c. Decreased menstrual flow and periods of amenorrhea in the female.
- C. Hypersecretion.
 - 1. Pre-adolescent.
 - a. Normal giant stature (upper and lower measures equal).
 - b. Well developed sexual organs and secondary sex characteristics.
 - 2. Post-adolescent.
 - a. Acromegalic tendency, such as whopper-jaw, separation of teeth, widening of malar processes, prominence of supraorbital ridges, spade hands, etc.
 - b. Increased size of hands and feet, due to increased size of flat bones, widening of long bones of hands and feet and mushrooming of the terminal phalanges.
 - c. Hypersexuality, with decreased libido in later stages.

- d. Gradual proportional increase of the upper torsal measurement over the lower. Increased hair distribution, over the extremities especially.

II. *Posterior Lobe.*

- A. Function. Fat distribution and smooth muscle control.
- B. Hyposecretion.
 - 1. Pre-adolescent: Classical type described as Froelich's syndrome, which is characterized by obesity and infantile genital development.
 - 2. Post-adolescent.
 - a. Classical girdle, mammary and mons distribution of fat.
 - b. Tendency to constipation (probably from lack of sufficient smooth muscle stimulus).
 - c. Tendency to high blood pressure (in certain cases).
- C. Hypersecretion. No difference between pre- and post-adolescent.
 - a. Emaciation.
 - b. Increased basal metabolism, usually.
 - c. Decreased sugar tolerance.

III. *Middle Lobe (Pars intermedia).*

- A. Insufficiency. Frequently associated with diabetes insipidus.

N. B.—Anterior and posterior involvement are frequently associated, especially the post-adolescent hyposecretion type. The signs above are known as hormonal signs—that is, those produced upon the organism as a whole by the activity of the glandular secretions in the blood stream. There are associated "neighborhood signs" (of Cushing) when the disturbance is accompanied by a neoplasm of the pituitary gland substance. These signs are produced by local pressure upon structures adjacent to the pituitary body, such as the optic chiasma, uncinate gyrus and by the general increased intracranial pressure.

University Club Bldg.

THE PATHOGENESIS OF PARATHYROID TETANY.—Parathyroid tetany or depression, Lester R. Dragstedt, Chicago (*Journal A. M. A.*, November 4, 1922), asserts is due to an intoxication. The responsible toxic substances come chiefly from the gastrointestinal tract. They arise through the activity of the proteolytic group of intestinal bacteria, and are probably for the most part protein split products of the nature of amines. The function of the parathyroid glands is to prevent intoxication by these poisons. The parathyroid glands do not furnish a hormone necessary for life, and dogs may be kept alive indefinitely after their removal, if treatment directed to the prevention of this toxemia of intestinal origin is carried out.

**THE JOURNAL
OF THE
Missouri State Medical Association**

JUNE, 1923.

EDITORIALS

THE JOPLIN SESSION

Those members who attended the Joplin meeting of the Association last month felt amply repaid for the time spent away from home. They not only praised the scientific program and the earnest work of the House of Delegates but they also voiced their appreciation of the delightful entertainments prepared by the members of the Jasper County Medical Society. Every moment of the time at the meeting was filled with something pleasing and profitable.

The registration was 350 including a number of visiting physicians from Kansas, Oklahoma and Arkansas. All the sessions were held in the Scottish Rite Cathedral where every convenience was provided for the transaction of all business. The auditorium is splendidly appointed for holding such meetings and the class room, adjoining the auditorium, was ideally equipped for the meetings of the House of Delegates, the Council and other committees. In the basement the exhibitors displayed their goods, and here, too, the cabaret dinner was given. This was an occasion of much enjoyment where the members and guests were entertained for three hours. The members of the Jasper County Medical Society are to be congratulated for the delightful manner in which they entertained their visitors.

The innovation of having an evening session for the president's reception was well received. Here several addresses were made by prominent citizens of Joplin, an elaborate musical program rendered and Dr. McComas delivered the president's annual address. Following the reception there was a dance on the roof garden of the Connor Hotel.

With all the entertainment provided for the recreation of the members the attendance at the scientific sessions was excellent, although this statement must be qualified by saying that the session of the House of Delegates on the first day drew too many spectators and thus reduced the attendance at the scientific session. This has provoked a discussion among some of the members advocating a separate session of the business body on the day preceding the beginning of the scientific work. Missouri is one of the few states with large

membership that continues simultaneous meetings of the business and scientific departments. Six sessions are not too many for the reading and discussion of papers and the business of the House of Delegates grows in importance annually so that it would seem profitable to consider holding the business sessions one day in advance of the scientific program. This would also permit the members of House and the Councilors to participate in the scientific work.

Another point discussed was the election of officers, particularly the election of the president. There is considerable sentiment favoring the election of the president in the general meeting and the subject was put in shape to be decided at the next meeting by the introduction of an amendment to the constitution providing for the election of the president in the general meeting.

The election of officers resulted in the unanimous choice of Dr. G. Wilse Robinson, of Kansas City, for president, no other candidate being mentioned. The other officers elected were:

Vice presidents, J. W. Love, Springfield; R. F. Hyland, St. Louis; A. J. Campbell, Sedalia; J. B. Wright, Trenton; R. L. Hamilton, Richmond. Secretary, E. J. Goodwin, St. Louis (re-elected). Treasurer, J. Franklin Welch, Salisbury (re-elected). Delegates to the American Medical Association, E. P. North, St. Louis; J. Curtis Lyter, St. Louis.

Springfield was chosen without opposition for the next place of meeting.

**THE EXAMINATION OF APPLICANTS
FOR PENSION FOR THE BLIND**

In March a questionnaire was sent to the oculists on the consulting staff of the Missouri Commission for the Blind. Each oculist on this staff was requested to state on this questionnaire: first, whether he would be willing to examine applicants for the pension; second, whether he would be willing to make these examinations in counties other than his own or at places in his home county away from his place of residence; third, what county or counties in which he preferred to examine applicants. Of 98 specialists on the present consulting staff, answers were received from 72 and 50 of these were willing to examine in counties other than their own.

Examination of applicants will begin June 25. Detailed directions will be sent to each medical examiner before that time.

The general physicians over the state are able to render very valuable assistance in the examination of applicants. Every applicant on the present roll (made up of those examined

in the last two years) will be notified to appear on a certain day for examination by an oculist. Nevertheless there will be some of these former applicants, or at least some new cases appearing from time to time residing in the country and the small towns, the rejection of whom would be heartless, particularly after a trip to the oculist examiner entailing considerable personal expense and inconvenience. On the other hand, the time of the medical examiner should not be wasted in making a long trip to examine a single applicant only to find him ineligible. The family physician residing in the vicinity would not be put to much inconvenience to determine whether an applicant was probably eligible to receive the pension. Economic qualifications for receiving the pension can be obtained by prospective applicants from the probate judge of the county in which the applicant resides. The new law specifies that no individual whose vision is better than light perception can be considered as eligible. It will be very easy for the general physician to determine if the applicant's vision is better than light perception. If the applicant is seated before a well-lighted window having his back to the light, then the examiner can move his hand up and down or from right to left against a dark-colored ground (such as the examiner's dark clothes or some dark-colored surface). If the applicant can tell definitely the direction of the motion of the examiner's hand at two feet, he can see better than light perception and therefore is not eligible for a pension. If there is doubt in the physician's mind as to the ability of the applicant to distinguish the movement of the hand at two feet, he should be classed as not seeing better than light perception and should be sent to the examining oculist. It is to be noted that vision in both eyes must be zero or light perception only in order that the applicant may be eligible to a pension.

The Missouri Commission for the Blind is putting into activity a program of greatly increased scope. This partly consists in establishing branch headquarters in Joplin, St. Joseph, Springfield, Hannibal, and Cape Girardeau, and increasing the activity of those previously established in St. Louis, Kansas City, and Jefferson City. The commission is prepared to provide means for operating or treating those applicants for whom such procedure is indicated.

The commission desires also to be informed of the names and addresses of all individuals incapacitated by reason of blindness who are found not eligible to receive the pension. The commission often finds opportunity to assist such individuals in ways other than the pension.

THE GOLF TOURNAMENT

The golf tournament held at the Oak Hill Country Club for the visiting members of the Missouri State Medical Association at the 66th annual meeting at Joplin was easily the feature of the meeting.

Approximately one hundred members attended as spectators and players, and an enthusiastic crowd followed the contestants over the course during the final round.

Rousing cheers accompanied the presentation of the handsome silver loving cup to Dr. Ray C. Lounsberry, of Springfield, the winner of the tournament, following a short address by Mr. Joseph E. Garm, chairman of the match. Dr. Morris H. Clark, of Kansas City, was runner-up. The final match was a spirited one from start to finish as these two were considered the favorites with most of the betting on Dr. Clark. Both of them played splendid golf and it was not until the eighteenth hole that the winner was decided. There were but two strokes difference in the medal score.

The St. Louis contingent were greatly disappointed because Dr. Fred Bailey of that city did not stay for the finals as they felt that he would undoubtedly be the winner.

Many of the visiting members availed themselves of the hospitality of the Oak Hill Country Club and remained for lunch and dinner which were served in the handsomely appointed grill.

Those who qualified for the final round are:

- M. Hayward Post, St. Louis.
- I. D. Kelley, Jr., St. Louis.
- Marsh Pitzman, St. Louis.
- Ellis Fischel, St. Louis.
- Charles E. Hyndman, St. Louis.
- Clyde P. Dyer, St. Louis.
- Fred W. Bailey, St. Louis.
- W. W. Graves, St. Louis.
- W. H. Olmsted, St. Louis.
- F. M. McCallum, St. Louis.
- R. W. Holbrook, St. Louis.
- G. Wilse Robinson, Kansas City.
- M. H. Clark, Kansas City.
- J. W. Kimberlin, Kansas City.
- J. M. Frankenburger, Kansas City.
- A. J. Welch, Kansas City.
- Hermon S. Major, Kansas City.
- A. J. Chalkley, Lexington.
- Ray C. Lounsberry, Springfield.
- W. H. Rainey, St. Louis.

NATIONAL HOSPITAL DAY AT MISSOURI STATE SANATORIUM

The Missouri State Sanatorium held its second celebration of National Hospital Day, Saturday, May 12. National Hospital Day originated about three years ago and has a two-

fold purpose; first, celebration of Florence Nightingale's birthday, and second, to acquaint the public with the hospital and its work.

Many noted speakers and visitors attended the afternoon program. The attendance was estimated at about 750. As the weather was too cold for the entertainment to be held in the open as was first planned, it was transferred to the new assembly hall, which was not quite complete. Only a portion of the crowd could be accommodated in the hall.

The Mt. Vernon band gave an excellent concert from 1 p. m. until 2 p. m. The program was opened by singing America, the Beautiful, after which Rev. J. J. Ehrstein of Mt. Vernon gave the invocation. The S. S. S. O. then gave the Kitchen Symphony with Mr. J. Kmety directing. This orchestra was composed of patients. The instruments consisted of kitchen utensils, glasses, tin covers, milk jugs, saucepans, flat irons, etc. Mr. Kmety also presented the Toy Symphony at the evening performance.

A very appropriate welcome was given by Judge Chas. Henson of Mt. Vernon. The Sarcoxie Lyric Male Chorus, under the direction of N. C. Spencer, gave several numbers which were greatly appreciated. Dr. W. McN. Miller, executive secretary of the State Tuberculosis Association, St. Louis, gave a very interesting address on the tuberculosis situation in Missouri. Hon. Frank L. Forlow, member of the board of managers of state Eleemosynary Institutions, told how the different institutions had always been a football of politics and to prevent this Gov. Hyde had presented to the legislature the bill that created the eleemosynary board which now governs the state institutions. Mr. Forlow said that this board was not non-partisan but bi-partisan and that each change of administration will no longer mean a complete change in the personnel of the hospital.

Mr. J. Kmety, cellist, accompanied by Miss Hughes, played Gavotte, by Popper, and was encored again and again. Mr. Kmety is an excellent musician and has given much pleasure to the people on the Hill.

Dr. C. B. Miller delivered an interesting address on the history of medicine. Dr. Miller is pastor of the First Baptist Church in Springfield but also holds the degree of M. D., having prepared himself to be a medical missionary. He is also president of the state board of Charities and Corrections. Mr. Joseph Greensfelder, another member of that board, was present. Rev. Carter closed the program of the afternoon with a short prayer.

After the program ice cream was served to everyone. Many visitors from other states and surrounding counties and towns attended the service and visited friends and relatives.

Each one was given a souvenir of the occasion—a National Hospital Day button. Hundreds of beautiful carnations and roses were donated by the other institutions for this day, and every building on the Hill was decorated with them.

National Hospital Day is an exceedingly valuable movement, for if the public can be informed definitely and intelligently as to the importance of hospitals and of the personal relation between the people and the hospitals as one of the most important factors in the maintenance of the public health, the guardians of the public health will have less difficulty in approaching the legislative bodies and officials who hold the purse strings of the people's money.

HYGEIA

The first issue of "Hygeia," the new magazine published by the American Medical Association and having as its prime object the bettering of health over the country, appeared March 23. It is beautifully printed on heavy paper and is attractive looking, which are the first requisites of success. The articles are at once instructive and interesting, and present ideas new to the lay mind, for whom the magazine is primarily published. The strictly technical article is wisely avoided. There is something of interest to every member of the family and the magazine as a whole makes a valuable addition to any library table.

The American Medical Association is to be congratulated upon filling a long felt need, that of giving scientific information and instruction on health to the general public in a readable, understandable form. It should be the pleasure of every physician to acquaint himself with this magazine and to recommend it to his patients and friends as a helpful, interesting and instructive publication. We hope many of our members will subscribe for it.

DR. SMITH'S NAME OMITTED

The list of specialists in Missouri holding the Certificate of the American Board for Ophthalmic Examinations as published in the April number of THE JOURNAL unfortunately omitted the name of Dr. Owen A. Smith, of Farmington, Missouri. We add our apologies to those of Dr. Wm. H. Wilder, Secretary of the Examining Board, for this oversight. We are assured by Dr. Wilder that Dr. O. A. Smith was the only physician in Missouri holding the certificate, whose name was not on the list as published. Dr. Smith was awarded the certificate of the Examining Board June 8, 1921.

NEWS NOTES

DR. R. EMMET KANE, of St. Louis, was married May 1, 1923, to Miss Grace Cantwell of Madison, Wisconsin.

DR. LEE PETIT GAY, of St. Louis, was married April 22, 1923, to Miss Ruth Bradfield, formerly of Abiline, Texas.

DR. CARL A. HOBERECHT, of St. Louis, announces that he has moved his office to the Metropolitan Building and will in future be associated with Dr. John Green, Jr.

DR. C. R. HARRINGTON, lecturer in pathological chemistry, University College, London, was the guest of the Department of Biochemistry, Washington University School of Medicine, St. Louis, during May.

DR. NATHANIEL ALLISON, Dean of Washington University School of Medicine, St. Louis, spoke on "Medical Problems," before the Jackson County Medical Society, at Kansas City, Mo., April 14, 1923.

THERE is a good opening near St. Louis for a competent physician who does not object to practicing in a small community adjacent to the city. For particulars address the secretary, 3529 Pine St., St. Louis.

DR. FRANCIS CULLEN, senior physician at the City Hospital, St. Louis, has been appointed superintendent of the Isolation Hospital to succeed Dr. Eugene A. Scharff, who was recently appointed superintendent of the City Hospital.

DR. HANAU W. LOEB, of St. Louis, dean of the Medical School of St. Louis University, was elected president of the American Laryngological, Rhinological, and Otological Society at the annual meeting of the society held at Atlantic City, May 10.

THE State Food and Drug Department has begun a campaign in St. Louis to clean up groceries and markets in certain sections of the city. On April 11 the inspectors of the department condemned and destroyed a wagon load of canned foods taken from one store.

THE general education board of the Rockefeller Foundation has appropriated \$1,250,000 as a gift to the State of Iowa toward the construction and equipment of new buildings for

the medical school of the University of Iowa. The total amount to be expended for this purpose is \$4,500,000, the State of Iowa pledging itself to appropriate \$2,500,000.

DR. MONTROSE T. BURROWS, Associate Professor of Experimental Surgery, Washington University School of Medicine, St. Louis, announces that the animal quarters of that institution are being enlarged to accommodate more than twice the present capacity. The City of St. Louis is supplying sufficient animals for unhampered experimental work.

THE Clinical Surgical Society of America held its thirty-sixth annual meeting at Washington University School of Medicine, St. Louis, May 28, and at the clinic of Dr. Willard Bartlett at the Missouri Baptist Sanitarium the 29th. Papers by local surgeons were read on recent advances on thoracic and cardiac surgery, X-ray therapy and kindred subjects.

HEALTH COMMISSIONER STARKLOFF, St. Louis, has recommended to the Board of Public Service that the license of Dr. Marguerite Vorbeck and her son, Dr. J. C. Vorbeck, to conduct the Marguerite Non-Sectarian Old People's Home be revoked. Complaints have been made to the Health Commissioner charging that at least one inmate had been treated cruelly.

THE health department of St. Louis caused the arrest May 4, of C. Edward Barnett on a charge of practicing medicine without a license. Barnett held himself out to be a doctor of naprapathy. It is said that one of his methods included the drawing of lines on the patient's body to insure the same treatment at the identical spot on the next visit but that the drawing had no connection with the curative process.

DR. RALPH A. KINSELLA, Acting Busch Professor of Medicine, Washington University School of Medicine, spoke before the Muncie Academy of Medicine, Muncie, Ind., April 20, on "A Year's Work in the Medical Department of Washington University." This subject includes his own work on endocarditis and the treatment of diabetes mellitus with insulin by Dr. Wm. H. Olmsted, also of Washington University School of Medicine.

A COMMISSION of Japanese medical scientists visited Washington University School of Medicine, St. Louis, April 23 to April 26, under the auspices of the Rockefeller Foundation. The personnel of this commission was Drs. Akira

Fujinami, Sahachiro Hata, Kinnosuke Kiura and Baron Takaki. All the members of the commission have made valuable contributions to medical science and they occupy positions of eminence in their own country.

DR. RALPH A. KINSELLA, Acting Busch Professor of Medicine, Washington University School of Medicine, St. Louis, spoke at Atlantic City before a meeting of the American Association for the Advancement of Medical Research on his work on "The Experimental Reproduction of Glomerular Nephritis." This work is incidental to investigations on streptococcus endocarditis now under way in his department.

DR. OSKAR FRANKL, Professor of Gynecology of the University of Vienna and a recognized authority in his specialty, completed his post-graduate courses in gynecological pathology and endocrinology, April 20, which he was conducting at Washington University School of Medicine, St. Louis. These courses were well attended and appreciated by the practitioners. During his stay at the school he also gave a number of lectures to the students and the staffs of the affiliated hospitals.

DR. EUGENE L. OPIE, Professor of the Department of Pathology, Washington University School of Medicine, was again honored by being unanimously elected to membership in the National Academy of Sciences, at the meeting held in Washington, D. C., April 23, 1923. This organization has a limited membership and election to its membership is the highest honor that can be conferred upon scientists in this country. Only four other St. Louisans have ever been similarly honored.

PLANS have been completed for the establishing of a \$500,000 Maternity Hospital with the Washington University School of Medicine group. This hospital will be an eight-story building and will eventually have a 250-bed capacity instead of the 33-bed capacity of the present St. Louis Maternity Hospital, which it will succeed. It will have a similar affiliation with the Medical School as the St. Louis Children's Hospital, the Shriners' Hospital for Crippled Children and the Barnes Hospital now hold. Ground will be broken within the next six months.

DR. JAMES H. PARKER, who has been a member of the staff of the East Louisiana Hospital for the Insane at Jackson, La., for several years, has been appointed superintendent of Hospital No. 4 at Farmington to succeed Dr.

Brunner. Dr. Parker is a native Missourian, the son of Dr. Waller Parker of Steelville. He practiced at Steelville for several years after his graduation from the University of Louisville Medical Department in 1910, then accepted a position on the staff of the Michigan Home and Training School for the Feeble-minded at Lapeer, Mich.

DR. R. M. WILSON, Superintendent of the Kwangje Leper Hospital, Korea, spoke at Washington University School of Medicine, St. Louis, May 9, on the development of his hospital from a few mud huts to its present well equipped and organized state. Practically all of this work has been done by the leper patients. Dr. Wilson has been treating the lepers with chaulmoogra oil, recently found to be of benefit in this condition. He has been able to discharge a considerable number of patients as cured; many others have been greatly benefited.

THE Jackson County Medical Society is arranging for a special Pullman to be attached to the Southern Medical Society's special train for the American Medical Association meeting in San Francisco. This train will leave Kansas City, Tuesday, June 19, at 5:45 p. m., via the Missouri Pacific Railway, spending one day in Colorado Springs and one day in Salt Lake City, arriving at San Francisco Sunday, June 24 at 5:45 p. m. Physicians in the territory around Kansas City wishing reservations on this car should address the Secretary, Jackson County Medical Society, General Hospital, Kansas City, Mo.

PROFESSOR BAKULE, of Prague, Czechoslovakia, gave a lecture and demonstration under the auspices of the St. Louis School of Occupational Therapy at Washington University School of Medicine, May 1. He is touring the United States with a group of handicapped children, whom he has trained to become adept at some gainful occupation. Many of the children would ordinarily be considered as hopelessly incapacitated for life but, instead of being private or public charges, they are able to contribute not only to their own maintenance but to others as well. Briefly stated, his methods are based on ingenious appeals to curiosity and direction of their activity along the desired lines.

DR. OTTO MEYERHOF, Professor of Physiology, University of Kiel, as a guest of the Department of Physiology, Washington University School of Medicine, lectured on the "Dynamics of Muscle" and the "Energetics of Cell Processes" at the School, April 17 and

18. Professor Meyerhof's work on the physiology of striated muscle has attracted considerable attention in the scientific world for its originality, thoroughness and advancement. He also holds the enviable distinction of being the first German scientist honored by an invitation since the World War to lecture before American and British scientific organizations. He delivered one of the Harvey Lectures at New York during this present tour.

THE psychiatric clinic, inaugurated about a year ago at St. Louis by the National Committee for Mental Hygiene, was formally taken over by Department of Public Welfare, Nelson Cunliff, May 1, and becomes one of the city institutions. Director Cunliff has appointed Dr. William L. Nelson chief psychiatric clinic director at a salary of \$4,000 per year. He will have three assistants, two social workers and a secretary. The advisory board consists of Dr. M. A. Bliss, Mrs Arthur Baer, Mrs. N. A. McMillan, Mr. Carl Rathmann, Mrs. E. H. Steedman, Mr. F. J. Eismann and Mr. Emmett Carter. The clinic will cooperate with the Juvenile Court, parents and organizations dealing with rearing children. Its chief function is to study backward and incorrigible children.

EXAMINATIONS of candidates for entrance into the Regular Corps of the U. S. Public Health Service will be held at the following-named places on the dates specified:

At Washington, D. C. July 9, 1923
At Chicago, Ill. July 9, 1923
At San Francisco, Cal. July 9, 1923

Candidates must be not less than twenty-three nor more than thirty-two years of age, and they must have been graduated in medicine at some reputable medical college, and have had one year's hospital experience or two years' professional practice. They must pass satisfactorily, oral, written, and clinical tests before a board of medical officers and undergo a physical examination. Successful candidates will be recommended for appointment by the President with the advice and consent of the Senate. Requests for information or permission to take this examination should be addressed to the Surgeon General, U. S. Public Health Service, Washington, D. C.

DR. JOHN R. HALL, of Marshall, was recently honored by the Saline County Medical Society with a banquet in commemoration of the completion of his fiftieth year as a practicing physician in Saline County. This tribute conveyed to Dr. Hall only in a small degree the sincere regard in which he is held by his colleagues in his home county. Dr. D. F.

Manning acted as toastmaster, and more than a half-dozen former classmates and life-long friends paid high tribute to this venerable physician.

In response, Dr. Hall mentioned that the day was also the one hundred and seventh anniversary of his father's birth, Dr. M. W. Hall, who also was a Saline County physician. Dr. Hall showed at times that he was noticeably touched by the deference paid him by his professional friends. He was the recipient of many flowers, telegrams and letters of congratulation.

The banquet was attended by most of the physicians of Saline County and their wives.

THE following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies:

Abbott Laboratories—Sulpharsphenamine-Abbott.

Abbott Laboratories — Neutral Acriflavine-Abbott; Tablets Neutral Acriflavine-Abbott, 0.03 gm. ($\frac{1}{2}$ gr.); Enteric Coated Neutral Acriflavine-Abbott, 0.03 gm. ($\frac{1}{2}$ gr.).

Borcherdt Malt Extract Co.—Borcherdt's Cod Liver Oil and Iron Iodide.

Hynson, Wescott & Dunning—Phenoltetrachlorphthalein-H. W. & D.; Ampules Phenoltetrachlorphthalein-H. W. & D.

Mallinckrodt Chemical Works—Carbon Tetrachloride Medicinal-M. C. W.

Merck & Company—Digitan Ampules (for hypodermic use). Digitan Ampules (for oral use).

Merck & Co.—Skiabaryt (for rectal use)-Merck; Skiabaryt (for oral use)-Merck.

Nonproprietary article—Sulpharsphenamine.

Nonproprietary Articles — Neutral Acriflavine; Carbon Tetrachloride Medicinal.

Powers-Weightman-Rosengarten — Arsenobenzol-Billon.

Powers - Weightman - Rosengarten Co.—Carbon Tetrachlorid C. P.-P. W. R.

E. R. Squibb & Sons—Sulpharsphenamine-Squibb.

OBITUARY

WILLIAM R. CAMPBELL, M.D.

The following memorial of Dr. William R. Campbell was adopted by the Henry County Medical Society, April 11, 1923:

With deep regret the Henry County Medical Society announces the death of a fellow member and its president, Dr. William R. Campbell, following an operation for tumor of the brain at Johns Hopkins Hospital, Baltimore, on Monday, March 26.

Dr. Campbell was born at Mt. Sterling, Ill., September 2, 1878, coming to Henry County thirty-nine years ago with his parents. He attended the University of Missouri, graduated in medicine at Washington University, St. Louis, attended the clinics and worked in the hospitals. He came to Clinton ten years ago to do general practice.

For over a year his health has failed him and at times he could not attend his practice.

We mourn his loss and to the family, whose bereavement is greatest, we extend our deepest sympathy, and to the public, who loses an earnest, courageous official, whose action in the discharge of his duties was commendable and correct, a practitioner of acknowledged ability, both in diagnosis and treatment, strict in attention to duty and care of all in his charge.

F. M. DOUGLASS, M.D., Necrologist.

MILES B. TITTERINGTON, M.D.

Dr. Miles B. Titterington, of St. Louis, a graduate of St. Louis College of Physicians and Surgeons, 1896, died March 25, 1923, at his home following an operation for appendicitis. Dr. Titterington was a pioneer in X-ray work and was one of the founders of the Radiological Society of North America and was its second president. He was a member of the American Radiological Society and the St. Louis Medical Society and a Fellow of the American Medical Association.

EDWIN R. MENG, M.D.

Dr. Edwin R. Meng, of St. Louis, a graduate of Missouri Medical College (now Washington University Medical School), 1876, died at the age of seventy-six at his home, March 26, 1923. He was a member of the St. Louis Medical Society for 30 years and was recently made an Honor Member.

NEW METHOD OF TESTING LIVER FUNCTION WITH PHENOLTETRACHLORPHTHALEIN.—The principle of the method devised by Sanford M. Rosenthal, Baltimore (*Journal A. M. A.*, December 23, 1922), is as follows: Five mg. of phenoltetrachlorphthalein per kilogram (2.2 pounds) of body weight is injected intravenously. This dosage is normally removed from the blood stream very rapidly: in normal human beings, from 2 to 6 per cent. is present in the plasma fifteen minutes after injection, and complete disappearance takes place within from forty to sixty minutes. In cases of liver disease, high percentages may be found in the plasma for many hours after injection. Clinical results have fully borne out experimental work. Following the intravenous injection of the dye, strikingly high degrees of retention in the plasma have been found to occur in cases of hepatic disease. Results by this method are quantitative, and it is believed that they give an index of the fundamental capacity of the liver.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL, FOR 1923

(UNDER THIS HEAD WE LIST THE SOCIETIES WHICH HAVE PAID THE STATE ASSESSMENT FOR ALL THEIR MEMBERS)

Chariton County Medical Society, December 31, 1922.

Webster County Medical Society, January 6, 1923.

Madison County Medical Society, January 15, 1923.

Cape Girardeau Medical Society, January 23, 1923.

Camden County Medical Society, February 1, 1923.

Clark County Medical Society, March 5, 1923.

Perry County Medical Society, March 27, 1923.

Vernon County Medical Society, April 7, 1923.

PROCEEDINGS OF THE WASHINGTON UNIVERSITY MEDICAL SOCIETY

Ninety-Sixth Meeting, April 9, 1923

1. PRESENTATION OF CASES.

A. A CASE OF CHRONIC LYMPHATIC LEUKEMIA.—By DR. M. LASERSOHN.

L. P., black, female, age 38, housewife.

Diagnosis.—Chronic lymphatic leukemia.

History is one of attacks of sore throat every two or three years since childhood.

In December, 1922, had acute tonsillitis with swellings in each side of neck. Stated that tonsils got larger with each attack of sore throat and receded, but with last attack tonsils had remained larger, interfering with speech and somewhat with respiration.

Examination showed obese negress, weighing 181 pounds; speech thick; some dyspnea; tonsils meeting in midline. Masses of lymph nodes in neck, firm, discrete and movable. Masses also in axilla, groins and supraclavicular fossae. Marked enlargement of epitrochlears. Subcutaneous nodule on chest, second interspace; eyes negative, including ophthalmoscopic; lungs negative clinically. Cardiovascular system negative. Abdomen: liver enlarged somewhat; spleen definitely felt on deep inspiration. Nervous system negative. G. U. negative. Blood on entering showed WBC 620,000; RBC 3,230,000; hemoglobin 55 per cent.; differentials shows 99 per cent.; small lymphocytes. Clotting time, seven and three-fourths minutes; bleeding time, four minutes. Negative Wassermann. Therapy consisted of deep X-ray to side of neck and to spleen; with this treatment there has been a drop in the white count to 320,000; the anemia and differential count have remained about the same.

DISCUSSION

Dr. M. Lasersohn: This case demonstrates the advisability of carrying out a complete routine examination. When this patient first entered the hospital, the enlarged tonsils indicated a diagnosis of chronic tonsillitis, but after the routine examination the white blood count was found so high that the diagnosis was obviously that of leukemic tonsils.

B. CASE OF MULTIPLE STEATOMATA.—By MR. BEN M. BULL.

This case was presented on account of its rarity and not because of the type of skin tumors. Stel-

wagon mentions only three cases where so large a number of these cysts were present. This case was at first confused with Von Recklinghausen's disease and lipomatosis of the skin.

Patient, age 69, white, male, janitor, entered the Dispensary complaining of shortness of breath and lumps over the body.

Chief complaint has no relation to skin condition. Family history, irrelevant. Past history and present illness apparently irrelevant, except patient believes similar skin tumors appeared shortly after treatment for lues 35 years ago. Tumors disappeared. These cysts began to appear eight or ten years ago.

Examination of the skin shows tumor distribution as follows: Back of neck 7; right arm 21; right leg 18, left arm 13, left leg 18, front of trunk 42; back 40, total 140. The tumors may be evacuated easily by pricking with knife and squeezing out the contents, which is of the consistency and color of soft butter. While in the hospital one more tumor appeared behind the right ear; this could be easily emptied by pressure since there was no occlusion of the duct. Biopsy showed tumors to be sebaceous cysts.

The points of differential diagnosis are: Tumors are in the skin and attached to the dermis. Some of them may be multilocular. Frequently, the occluded duct may be made out by moving the skin over the tumor and by palpation. On opening the duct one usually finds a plug of inspissated sebaceous material. Biopsy or evacuation of contents are most conclusive diagnostic points.

This case will be reported more completely elsewhere by Dr. Lee D. Cady.

C. A CASE OF HEALED ACTINOMYCOSIS OF THE FACE.—By DR. A. O. FISHER.

A case showing the complete cure of a very extensive lesion of the right side of the face with potassium iodide. Patient presented herself five years ago with multiple sinuses about the lower jaw, which drained both into the mouth and to the outside. X-rays showed absence of bone involvement. Was completely healed within six months and has remained so. There is very little scarring.

D. A CASE OF ACTINOMYCOSIS.—By DR. MONTROSE T. BURROWS.

Patient is a colored male 22 years old. Worked at times about cattle in his earlier life and up to a few months of the onset of his present illness. Past history and family history unimportant. Present illness began with swelling of his right jaw in 1916. Admitted to the dispensary in February, 1917, with a diagnosis of cellulitis of the face. One abscess was opened and drained. The sinus closed May 28, 1917. An X-ray diagnosis of osteomyelitis of the jaw was made. Infected tooth was suspected. He was advised to enter the hospital but did not do so. Patient returned again to the dispensary September 15, 1921, with an extensive involvement of the whole of the right cheek, the angle of the jaw and adjacent portions of the neck. One abscess over the parotid measuring 8x4 cm, was opened and drained. There were two discharging sinuses in the neck. Another abscess soon developed under his ear. This was opened. A piece of tissue from the parotid region showed chronic parotitis. The pus from abscess below his ear contained many sulphur granules which proved to be the ray fungus. Patient was given potassium iodide and X-ray treatments. I saw the patient for the first time on September 15. He came under my care on November 9. Between November 9 and March 1 he received six X-ray treatments

with a machine operating with 90,000 volts. During this time he would not take his potassium iodide. There was no improvement, but lesions slowly progressed. On April 15, 25 and May 13, 1922, he received more X-ray treatments with a machine operating with a current of 200,000 volts. During the spring, summer and fall of 1922 he took his potassium iodide fairly regularly in doses ranging from 10 to 15 drops of a saturated solution three times a day. The lesion gradually improved until the face had practically cleared. He stopped this treatment about November 1. He came in on December 13, 1922, with a small abscess at the angle of the jaw. This was opened and has never healed. He has taken no more treatment but in spite of this fact the lesion has not increased. It now involves only a small area of the bone, about which is a small area of induration.

The point of interest in this case is that X-ray is apparently neither favorable nor unfavorable for the treatment of these cases. Marked improvement followed the use of potassium iodide. This was given in doses up to 15 drops of a saturated solution three times a day. Another interesting fact is that the ray fungus was not recovered from every abscess opened. This may account for a failure to make a diagnosis after one examination. All such chronic lesions of the face or other parts of the body should be studied carefully. This disease is probably more common than is often suspected.

E. A CASE OF AMEBIC DYSENTERY IN WHICH AN AMEBIC ULCER OF THE LARGE BOWEL CAUSED PARTIAL OBSTRUCTION AND RENDERED THE USUAL TREATMENT INEFFECTUAL.—By DR. A. O. FISHER

Patient first seen a few months ago after having suffered with dysentery for eleven years. Diagnosis easily made of amebic dysentery and he responded to the usual emetic treatment. Never cleared up completely and two months ago had a recurrence of his symptoms with the addition of cramp-like abdominal pain. Did not respond to emetic although actively treated. X-ray examinations showed a constriction near the hepatic flexure of the colon. Ambe persisted in the stools.

Exploratory laparotomy. Annular stricture at the hepatic flexure suggesting new growth. Resection of the cecum, ascending colon and part of transverse colon. Anastomosis of ileum and transverse colon. Patient made a rapid recovery and has gained 22 pounds. Dysentery has stopped and amebae absent from stools. One course of emetic since operation. Examination of tumor showed it to be inflammatory.

2. THE KAHN PRECIPITATION TEST FOR SYPHILIS: FINAL REPORT.—By JANET A. HOLMES.

In comparing the Kahn with the Wassermann test in the laboratory of the Department of Internal Medicine, we used 1,000 sera, selected indiscriminately, thus including all types of cases—known positives and negatives, cases upon which the diagnosis was doubtful, and a large number of treated cases of syphilis. We then compared the results of the two tests with each other and with the clinical findings. The results follow:

Wassermann neg.....	.....	}	681
Kahn neg.....	.....	}	223
Wassermann pos.....	.....	}	223
Kahn pos.....	.....	}	223

(Any difference in degree of positiveness was very slight.)

Wassermann pos.....	25
Kahn neg.....	
Wassermann neg.....	71
Kahn pos.....	
Total.....	1,000

There was a discrepancy in the results in only 96 cases, or an agreement between the two tests of 90.4 per cent.

The following is a table of the 96 cases where the discrepancy in the results occurred:

Wassermann pos.....	Difference of 3+ .5 cases	Def. pos. hist. 3 cases	
		Def. neg. hist. 1 case	.25
Kahn neg... ..	Difference of less than 3+ .20 cases	Questionable 1 case	
		Def. neg. hist. 1 case	

Number showing definite positive history, 9.

Diagnoses of cases not showing definite positive history:

Pregnancy.....	4
Tuberculosis.....	2
Malaria.....	1
Diagnosis doubtful.....	9

Wassermann neg.....	Difference of 4+ .3 cases	Def. pos. hist. 2 cases	
	Difference of 3+ .10 cases	Def. neg. hist. 1 case	.71
Kahn pos.... ..	Difference of less than 3+ .58 cases	Def. neg. hist. 10 cases	

Number showing definite positive history, 49.

Diagnosis of cases not showing definite positive history:

Pregnancy.....	5
Tuberculosis.....	2
Arthritis.....	2
Epilepsy.....	1
Asthma.....	1
Diagnosis doubtful.....	11

The results on the 1,000 cases show a very close correlation between the two tests with the balance in favor of the Kahn, the Kahn showing a greater sensitivity, especially in treated cases.

DISCUSSION

Dr. J. V. Cooke: We have carried out the Kahn test at the St. Louis Children's Hospital during the past five months in those instances in which sufficient serum remained after doing the Wassermann reaction. On account of our close supervision over the clinical material also we have been able to tabulate the cases of hereditary syphilis separately and the tests may be divided into two groups, those on syphilitic and those on non-syphilitic children. In all about 1,000 Kahn tests have been done, using the usual technic with cholesterolized antigen.

Of the serums from known syphilitics there were 265. Twenty-seven of these were considered cured and had been Wassermann negative for from six months to several years. The Kahn tests in this cured group were negative. Of the remaining 238 serums from patients under active treatment, 99 per cent. were positive in some degree by the Kahn test and 94 per cent. were positive in some degree by the Wassermann reaction. In known syphilitics,

therefore, the Kahn reaction is apparently somewhat more delicate than the Wassermann, although neither gives a positive reaction in all cases.

The second group included 634 serums from children with no evidence or history of syphilis. Of these 624 were frankly negative to both the Wassermann and Kahn reactions. Two were very weakly positive in both tests; two were very weakly positive in the Wassermann and negative Kahn; two were strongly positive by the Kahn test with negative Wassermanns; and two were positive with cholesterolized antigen only in the Wassermann reaction and negative by the Kahn test. It is of interest that two of the children in this group of ten had a history of positive Wassermann reaction in one of the parents; one of these had a positive Kahn test and negative Wassermann, while the other had a negative Kahn test and a weakly positive Wassermann. Neither had any evidence of syphilis. Additional tests will be made on this group of ten in whom the two reactions showed variation.

The third group consisted of 108 cord bloods obtained through the kindness of the obstetrics department. Of these 107 were negative to both tests. One was strongly positive in the Wassermann and negative Kahn. The mother was syphilitic. The infant's blood six days later was negative to both tests. It has not yet been retested.

While we are not yet ready to discard the Wassermann in favor of the Kahn reaction, the results with the latter test are most favorable and it is a valuable aid in following treated cases on account of its greater sensitivity. At present we are not willing to accept a positive Kahn test in an untreated child as meaning syphilis if the Wassermann is negative and there are no clinical signs. The Kahn test is readily performed and is free from many of the disadvantages of the Wassermann so that if it is shown to be reliable, it should attain a wide popularity.

Dr. Graham: Why was the child who gave a positive Kahn reaction and whose mother had a positive Wassermann not included in the known syphilitic cases?

Dr. Cooke: Because we have never observed a young untreated child who had evidence of syphilis and yet gave a negative Wassermann reaction, and therefore would not accept the positive Kahn reaction alone as meaning syphilis in the absence of Wassermann and clinical signs even though one of the parents was syphilitic.

Dr. Graham: This child gave a positive Kahn test.

Dr. Cooke: I do not believe this evidence is sufficient.

Dr. Graham: I should think that would be a point in favor of the test rather than a point in favor of the case not being syphilitic.

Dr. Cooke: We would at present interpret that as being a false positive Kahn reaction in the absence of syphilis. I would like to ask Miss Holmes if she used both alcoholic and cholesterolized antigens.

Miss Holmes: I used both antigens but there is not a great difference between the two. The cholesterol was more sensitive than the alcoholic.

3. THE FACTOR OF DILUTION IN GASTRIC ANALYSIS.—By DR. FRANK D. GORHAM.

The great variety of "acidity curves" as obtained by the fractional method of gastric analysis and the different acid concentrations as determined by the single aspiration method have been interpreted mainly in the light of "secretory" variations. The factor of variable dilution of the acid by the fluid of the

test meal has been largely ignored. The dilution of the gastric juice at a given phase of digestion after a test meal, is dependent upon several factors, namely: (1) The amount of fluid taken with the test meal. (2) The rate of secretion of the gastric juice. (3) The emptying rate of the particular stomach for its fluid contents. (4) Other diluting factors as saliva, mucus, and duodenal contents.

In both the fractional and the single aspiration methods of gastric analysis, it is customary to give as part of the test meal 150 to 500 cubic centimeters (from a study of test meals used in 18 hospitals and clinics) of fluid upon a fasting stomach or after the removal of the fasting contents.

In this work it was my purpose to establish experimentally: 1. The importance of dilution of the gastric juice by the fluid of the test meal, in determining the "height of acidity" and the character of the so-called "secretory curve" obtained by fractional analysis. 2. To determine the relation of this factor of dilution to gastric acidity as obtained by the single aspiration method. A colorimetric method was devised for approximating the dilution of a given sample of stomach contents by the fluid taken with the test meal. A modified Ewald type of test meal, consisting of two pieces of Zwieback and 400 cubic centimeters of distilled water containing 1 cubic centimeter of phenolsulphonphthalein was used. The stomach contents were aspirated at different periods (one-half to two hours) by means of a soft stomach tube of the Rehfuss type. The total acidity was obtained in terms of 10th normal sodium hydroxide. The dye concentration of a sample of gastric contents was determined in the following manner: two cubic centimeters of a filtrate of the sample to be examined were placed in a cup of the Hellige colorimeter and made alkaline by adding 2 or 3 drops of 40 per cent. sodium hydroxide and the color compared against a standard of phenolsulphonphthalein, of the original concentration taken with the test meal (400 c.c. of distilled water containing 1 c.c. of phenolsulphonphthalein). The concentration of the dye is an index to the dilution of the sample of gastric contents by the fluid of the test meal still remaining in the stomach. By corrected acidity is meant the acidity of the gastric contents after the removal of the factor of dilution by the fluid taken with the test meal. For example; if the total acidity of a sample of contents at a given phase of digestion is 40 degrees and the dye concentration is 50 per cent. (meaning that the gastric juice has been diluted one-half by the fluid taken with the test meal) then the corrected total acidity would be 80 degrees.

In both normal and abnormal subjects it was found that when 400 cubic centimeters of fluid were given with the test meal, this fluid, acting as a diluent of the gastric juice, was of fundamental importance in determining the acid concentration of a given sample of gastric contents. Also, that the degree of dilution was variable both in the healthy and abnormal subjects. For example; in a group of abnormal subjects where the stomach was aspirated 45 minutes after finishing the meal, the dilution of the sample by the water taken with the test meal varied from 0 to 62 per cent., meaning, in the first instance, that the fluid (400 c.c.) of the test meal had left the stomach, while in the latter instance it constituted 62 per cent. of the sample of gastric contents. The influence of this dilution upon the acid concentration of the gastric contents, at a given phase of digestion after a test meal, is at once obvious.

DISCUSSION

Dr. Jos. W. Larimore: We have for a long time considered clinically that a duodenal ulcer will develop a gastric hyperacidity. The observations of Dr. Gorham in the cases of duodenal ulcer just

shown demonstrate this. Correction for dilution by injected fluid will not alter the fact of this concentration but will reveal the acid concentration of the stomach's own composite secretion. Physiologists state that the acid concentration of the secretion of the acid producing glands pathologically vary only downwards. The meaning of hyperacidity as the term is used must not be confused. It is relative, and indicates an acid concentration, a H. ion concentration, beyond that usually demonstrated, and does not mean the secretion of an acid stronger than that normally developed by the secreting cells and glands. In the clinical use of fractional analyses I think the curves which show what we have called hyperacidity are still useful. It is true that the dilution factor has not been considered as such, and analysed in our determination of acidities. Yet in all studies that factor has been present and considered as a standard factor of the test whatever test meal was used. All workers have used a standard meal having a standard factor of dilution as essential to establishing a precedent upon which to base conclusions. Variations in gastric motility, whether due to duodenal ulcer, cancer, or other pathological or functional causes alters the influence of the standard test meal and varying curves result. While in the past the dilution factor has not been mentioned it has necessarily entered into the determinations and does not vitiate the clinical conclusions drawn from fractional analyses.

Dr. Frank D. Gorham: I wish to emphasize that the variable acid concentrations as obtained by both the fractional and single aspiration methods are not necessarily "secretory" variations, but the resultant of many factors, and in the future it will be necessary to measure and correlate more accurately these several factors in order to speak "quantitatively" of gastric function.

4. CHANGES IN THE UTERINE VESSELS DURING PREGNANCY.—By DR. O. H. SCHWARZ and DR. F. P. McNALLY.

Goodall, in his work on the involution of the circulatory system of the uterus, describes certain changes occurring in the vessels of the uteri in the early puerperium which are of such a character that they must have occurred days before actual involution had set in. Further, Whitridge Williams in 1917, in a histological study of fifty uteri removed at Cesarean section, in discussing vascular changes of the decidua basalis and the subadjacent muscularis, mentions the presence of certain fibrinoid tissue and certain hyaline structures of bizarre outline in collapsed vessels. He was not at this time prepared to express a definite opinion as to the mode of production or their significance and hopes to give this subject further study. He mentions that since 1910 changes in the vessels during pregnancy have been studied, particularly by Frankl and Stolper, Schickele and Hinzelmann, but no general agreement has been reached as regards their mode of production. These changes refer to changes in the intima, a thickening here and there, during the latter months of pregnancy and do not refer to any marked degenerative changes in these vessels with the exception that Schickele describes of some vessels which showed more extensive changes. That these changes, particularly the most marked, were merely precursors of the changes which occur in the puerperium has not been emphasized, nor have descriptions been made which point out that these changes are analogous to those which occur in a more marked degree during the puerperium.

Our study consisted of twenty-three uteri, four of which were from early pregnancies, 14 to 19 weeks, two between 24 and 36 weeks, twelve between 36

and 40 weeks, four in the early puerperium and one five months post-partum. In the series between 36 and 40 weeks changes in the vessels were very striking in almost every case. First, the intimal changes previously described consisted of small fibrous tissue-like plaques to complete involvement of the entire intima. These changes were most marked in the arteries and were present to a definite degree in eleven out of the twelve cases.

The changes which Goodall described as occurring in post-partum, briefly, are degenerative changes of the vessel walls including a marked swelling of the elastica interna which, with Weigert-van Gieson stain, gives a series of color reactions indicating the degree of degeneration. At first the elastica swells and stains a definite black; this with further enlargement becomes a port-wine red, fades to a brick-red and then to a yellow, at which time it becomes absorbed, provided that involution continues.

These changes were observed in different stages in a very definite manner in ten out of the twelve cases; they were unusually striking in two cases and they were definitely marked in four others.

We concluded, therefore, that these degenerative changes of the more extensive type such as described by Goodall as occurring post-partum, occur frequently in the uterus near or at term and we feel that they are at least of definite clinical significance in the production of the so-called white infarcts and in the condition known as utero-placental apoplexy.

DISCUSSION

DR. E. L. OPIE: These observations of Dr. Schwarz are of considerable interest in relation to general arteriosclerosis. These changes in the arteries described by him differ from those that we find with the arteriosclerosis of elderly people, for there is no atheromatous degeneration and calcification. With the great change in size and functional activity which the uterus undergoes with pregnancy, there is a great increase in the size of blood vessels, but with involution the blood flow diminishes and the lumina of the arteries are diminished by increase in the thickness of the intima. There are other examples of similar change. With amputation of a leg the amount of blood passing through the femoral artery is diminished, and with this diminution of flow there is proliferation of the intima. The change is certainly not inflammatory. It is generally recognized that arteriosclerosis can produce nephritis, and there is a very well known form of arteriosclerotic nephritis. It is surprising to find with small granular kidneys in young individuals who have no general arteriosclerosis that the small arteries of the kidney exhibit well marked thickening of the intima. This sclerosis of the arteries seems to be secondary to the renal lesion and not its cause. With diminution in functional activity and consequent diminution in the vascularity of the organ there seems to be a progressive thickening of the intima. The change appears to be analogous with that which occurs in the uterus.

5. BURNS AND THEIR TREATMENT IN THE ST. LOUIS CHILDREN'S HOSPITAL.—By DR. RILEY M. WALLER.

The study was undertaken at the suggestion of Dr. M. B. Clopton to present to the profession at large what has proven to be a satisfactory method of handling acute burns of hospital type. The need for such is evident from the variety of methods employed, and the wretched condition in which most children come into the hospital for treatment or for plastic surgery.

Only the records of the present regime at Children's Hospital were of benefit.

The treatment for the typical case follows:

1. Morphine as an aid for the first few hours.
2. Forced fluids and food.
3. Canopy and lights; maintenance of a constant temperature of 90 degrees Fahrenheit.
4. Child on face or back as indicated, with hands and feet tied to edges of bed.
5. No dressings, but at end of forty-eight hours, paraffin-hardened vaseline gauze applied to the area six out of forty-eight hours to remove crustations.
6. Careful laboratory work on admission and as the occasion arises.
7. Medical consultation and aid in complications.
8. Adhesive strips or paraffin with the usual surgical bandages over these in the ambulatory stage.
9. Reverdine grafts (autogenous) in large third degree burns only.
10. Occupational therapy.

In the atypical case such an elaborate routine was not necessary. Always the principles of immobilization of the part and of comfort to the patient regarding the dressings were kept in mind.

No clinical evidence or autopsy findings of duodenal ulcer was found. At autopsy the kidneys were no more involved than other organs, hence no specific action.

The mortality was 24 per cent., most of the fatal cases living only a short time after arrival. Deaths that occurred later were for the most part due to intercurrent infections.

The condition was one of the poorer classes as less than 1 per cent. paid a surgeon's fee, 69 per cent. were on free beds. When 0.48 per cent. of all admissions were burns, and the average stay of patients recovering was 31 days, one can understand the social and economic relation to a community.

DISCUSSION

DR. M. B. CLOPTON: One advantage in this treatment is that the children have had very much smoother scars when they have had their burns treated by the open air method, and healing has been quite rapid. Another advantage is that there has been no demoralization by the pain attending the dressings when done in the usual manner. This method is more popular in St. Louis than anywhere else and it should be used more generally. Paraffin dressings are excellent for ambulant cases. This type of dressing has been perfected more in the last few years since the World War and is most satisfactory, but for those cases that are confined to the bed no dressing is nearly as comfortable as the open air treatment.

BOOK REVIEWS

APPLIED CHEMISTRY. An elementary textbook for secondary schools. By Fredus N. Peters, Ph.D., Instructor in Chemistry in Central High School, Kansas City, Mo., for twenty-three years; more recently Vice-Principal; Author of "Chemistry for Nurses," etc. Illustrated. C. V. Mosby Company. St. Louis, 1922. Price, \$3.50.

The author has attempted "to present the chemical facts of every-day life in a readable form and by so doing make them interesting." He has succeeded unusually well. The fundamental facts of chemistry are stated in a clear manner and their application well made. Although it is intended primarily for the high school student, physicians will find it an excellent book for review of the elemental facts of chemistry. Knowledge of such facts is necessary if the physician is to keep abreast of the rapid advances in chemistry as applied to medicine.

R. L. H.

THE JOURNAL

OF THE

Missouri State Medical Association

The Official Organ of the State Association and Affiliated County Societies
Issued Monthly under direction of the Publication Committee

Volume XX

ST. LOUIS, Mo., JULY, 1923.

NUMBER 7

E. J. GOODWIN, M. D., EDITOR
3529 Pine St., St. Louis, Mo.

PUBLICATION COMMITTEE { W. H. BREUER, M. D., Chairman
S. P. CHILD, M. D.
M. A. BLISS, M. D.

ORIGINAL ARTICLES

GOOD HEALTH LAWS DEMAND COOPERATION OF PUBLIC WITH THE MEDICAL PROFESSION *

President's Address

A. R. McCOMAS, M.D.

STURGEON, MO.

It is a real pleasure for the physicians of the state to visit again your city situated as it is "in the Land of a Million Smiles," and to partake of your boundless hospitality.

The members of the Jasper County Medical Society, together with their friends, have spared neither time nor expense to make this meeting both pleasant and profitable.

Voicing the sentiment of the Missouri State Medical Association I say without hesitation, "We thank you."

I have attended many conventions in Joplin and my stay always seems too short. This is particularly true of one convention, a democratic convention. You had prepared to entertain the delegates for two or three days, but contrary to all expectations they completed their labors in one day. The same day it snowed; I don't know what power you exercised, but it was the deepest snow that ever fell in this country. Those of us who started home and were snowbound wished many times we had remained longer.

This Association was organized in 1850 and during the years of its existence its membership has stood for the highest ideals in citizenship and service to humanity. Many of its members have become known throughout the nation for their achievements. All have endeavored to promote the welfare of the communities in which they lived and of which they were an integral part.

Looking back through the years we find them identified with, and to the utmost of their ability, aiding every movement for the betterment of living conditions in the state. With this honorable record before us, we of

the present have our course clearly mapped out and try as best we can to uphold this high standard.

In his every day existence people have come to regard the physician as an institution to be called upon only in case of sickness, but he is more than that. Since the time of Pasteur and Koch, he has given a large portion of his time to the study of prevention of disease. If it were not for these accomplishments many of the advantages we now enjoy and accept as a matter of fact would be denied us.

Had it not been for the stamping out of yellow fever and malaria, the Panama Canal could never have been built. Typhoid fever, that dread scourge of the summer and autumn, has almost entirely disappeared.

In the factories and mines the development of industrial hygiene has greatly reduced sickness among employes and has increased production and the industrial earning power. Thus we might go on through the whole series of gainful pursuits; agriculture, dairying, horticulture, etc. Medicine and the allied sciences touch the lives of all of us.

The physician is the one element of our population whose daily life is spent in the study of disease and the problems of health. He it is who sees things as they actually exist and has an intimate knowledge of the conditions as they are. He has no illusions, neither does he indulge in platitudes or fine theories in the application of the remedies necessary. For him it is a stern reality, a condition that must be met and made better. It is impossible for him to come into such close relationship with these problems and not be affected by them. He is at all times ready and willing to aid in the up-lift of mankind but he does not have at all times the encouragement and backing of the public necessary to carry out the proper measures.

Many people fail to realize the importance of these measures. They are not always to blame. In the hustle and hurry of a busy life they overlook or ignore the efforts made in their behalf because they have not had these things brought home to them. Being free from disease and living comfortably themselves, they

* Read before the sixty-sixth annual meeting of the Missouri State Medical Association, Joplin, May 8-10, 1923.

fail to realize that around them there are many less fortunate persons for whom some provision should be made by the state, not to pauperize them but to make them self-sustaining, to educate them in the ways of healthful living and place them in a position not only to become productive citizens but also to enable them to enjoy the fruits of their labors.

It is only by education that these persons can come to a knowledge of the benefits to be derived from the application of the laws of health. Many remain unconvinced all their lives and often openly opposed to every effort made in their behalf.

Members of this Association are now giving and have for many years given of their time to enlighten the public in the methods of the prevention of disease and the modes of putting these methods into effect. There should be a close relationship between the public and physician in matters touching public health in the state and in the enactment of the health laws. Laws are made in the interest of the whole people. There is no health law which does not touch all alike. The physician gains nothing for himself alone by the enactment of these laws but is constantly striving for the interest of the people as a whole. That we now are in need of concerted action by the people is apparent to every thinking physician.

Let us briefly consider some of the things in which we all have a common interest, physician and layman alike—things that require legal enactments for accomplishment.

MEDICAL EDUCATION IN THE STATE UNIVERSITY

In our state university we graduate our young men and women in the arts and sciences, law, engineering, journalism, agriculture, etc., but only teach the first two years in medicine, after that the young man or woman, citizen of this state, is compelled to seek further training elsewhere. It is true there are two universities giving a complete medical course in the City of St. Louis, but they, like all other high-grade or class A medical schools, can accommodate only a very small number of students in addition to their own in the last two years. Therefore, most of our students must leave the state and many of them though well trained in their first two years, are forced to attend lower grade schools or give up the study of medicine altogether.

This situation is becoming more and more acute each year. This Association, realizing this, has repeatedly urged by resolution and memorial that the state establish the full four-year medical course in the state university. It is an economic loss to the state to force its medical students to go out of the state to finish

their education. Once out of the state ties are formed and relations are established so that few of them return to their own communities.

That there is a shortage of doctors in the small towns and rural communities no one can deny. That there is just as great need for them; that the rural population is as justly entitled to competent medical care as the city goes without saying. Neither city nor county can exist as a separate unity.

The problems of the country doctor are vastly different from that of his brother in the city. He has not a consultant for every emergency but has to rely upon his own resources. Therefore his training should be of a character that will give him a broad working knowledge of medicine, hygiene and sanitation. He must be able to meet emergencies single handed. For in his sphere there is no divided responsibility. Properly trained he can take full care of at least 95 per cent. of the cases that come to him.

In a great university such as ours, located in a small town, students of all departments are naturally brought into close relationship with each other. By this contact each group has a better and broader understanding of the aims and purposes of the other. This will result in better citizenship, better laws and a more equitable distribution of well trained men over the state.

STATE GENERAL HOSPITAL

In the state we now have 7,903 hospital beds, or one bed for every 431 population. In the other eleven north central states there is one bed for every 355 population. Six thousand, nine hundred and ninety-seven of Missouri's beds are located in St. Louis, Kansas City, St. Joseph and Springfield, leaving 1,003 scattered over the rest of the state. The cities it would seem are well provided for but have no more than they need. In almost every section of the rural communities hospital facilities are lacking.

The percentage of counties in the other eleven north central states without hospitals is 66 per cent., in Missouri it is 77 per cent. Therefore, the need for a state general hospital seems apparent. There are at least two elements in a state general hospital which should appeal to every loyal Missourian from a humanitarian point of view—a children's ward and a psychopathic ward.

CHILDREN'S WARD

Based on a partial survey of the state it has been estimated that there are 11,000 children with bright minds but with physical defects

that could be completely or partially corrected if facilities were at hand, but they will be compelled to pass their lives in their present condition unless some steps are taken by the state to relieve them. Many of them are charges upon a widowed mother or a family unable to care for them properly.

The St. Louis Medical Society has performed a distinct service in its survey of the city and surrounding territory, and in its generous offer to rehabilitate these children. In Kansas City, there is the Mercy Hospital of 125 beds supported by public donations. No one is allowed to pay for service received in the institution. The fine spirit shown by the donors, the superintendent and the staff of physicians, deserves the highest commendation. The county hospital staffs can take care of a small number and are doing it notably in Boone County. But what of the 77 per cent. of counties in the state that have no hospitals? This is too large a problem to be solved by donations of money from individuals and the generosity of physicians.

It is a state problem.

The residence of one of these children in a hospital is from a few months to two years. During this time the mental as well as the physical condition must be cared for. This could be well done at Columbia, by the school of education.

PSYCHOPATHIC WARD

There is another class for which no provision is made by the state,—the mentally unstable, the man or woman who is on the border line of insanity. Many of the now hopeless insane could have been relieved had they had proper institutional care before they finally toppled and lost their reason.

In a psychopathic ward of a general hospital such a patient can get the proper treatment by the combined effort of the general staff, without the stigma that sometimes attaches itself to one who has been an inmate of an insane asylum.

A state general hospital located at Columbia, the seat of the state university under the control of the board of curators and manned by the faculty of the medical school, will not only be a boon to the sick and afflicted, especially of rural Missouri, who are unable to provide for themselves but will provide a teaching hospital for a complete medical course. By serving this dual purpose, this can be accomplished at a great saving in money to the state.

This general plan is not an experiment but is in successful operation in our neighboring state of Iowa, also in Michigan and Virginia. Wisconsin has under construction a million dollar hospital and will give a full four years

course in medicine. All of these hospitals are located in cities of 10,000 to 20,000.

To divide the school of medicine so that part of the course is given at Columbia and the rest in a larger city would not only increase the cost of operation to the state but would involve insurmountable legal and political difficulties.

MEDICAL PRACTICE ACT

The state, by law, has assumed control of the practice of medicine and has created an agency known as the State Board of Health charged with "general supervision over the health and sanitary interests of the citizens of the state." It is also the licensing board for physicians. Under the law the premedical as well as the medical education is passed upon by the board. Any physician applying to this board who has not sufficient academic education is refused a license because this is necessary for the intelligent, understanding study of medicine. The people of the state have a right to demand that those to whom they entrust their lives are fitted by education and training for this great and important undertaking.

Many systems of healing the sick are now in vogue—many of them require not even a grade school education. It is in the interest of public health that we call to your attention the fact that the untrained mind is not capable of coping with the problems of health and sanitation.

To prolong life, relieve suffering and cure disease has been the theme of the best trained minds for ages. The advances that have been made are not the result of haphazard methods but of patient and untiring labor, advancing step by step; therefore it is the plain duty of the citizenship of this state to take an interest in the health laws—see that those who treat the sick by whatever system of healing they may use have a sufficient educational foundation to comprehend properly the diseases of the human body and the things they propose to practice. License any and all of the systems if you will, but place around them proper safeguards that they may not prey upon the credulity and ignorance of the public.

Since the state board of health is the body to whom this important function is intrusted it is fitting and proper that it should have supervision of and should license, under proper regulations, every person who assumes to treat the sick by whatever name the system or method may be called. It should have the power to enforce these laws against any and all who violate them.

The committee on health and public instruction will discuss these matters tomorrow morning at the Scottish Rite Cathedral at 10:30

o'clock. You are cordially invited to be present.

Finally, I wish to acknowledge a deep sense of gratitude for the high honor that has been conferred upon me. I am not so vain as to think that it is due to any individual merit of mine but to the democratic spirit that pervades our association.

To the secretary, the office force, the council, the delegates and the several committees of the association is due the praise of every member for their untiring labors in upholding the high standard of work of the association.

I'LETIN TREATMENT OF DIABETES*

DONALD R. BLACK, M. D.

KANSAS CITY, MO.

It is convenient to divide the history of diabetes, following Cantani, into four periods. The first extends from ancient times to the discovery of the sweetness of the urine by Willis in 1675. This discovery ushered in the second or diagnostic period. The third period, that of empiric treatment, began with Rollo, 1796. The fourth or modern period has its beginning between the years 1840 and 1850, the most prominent founders being Bernard and Bouchardt. Imperfect as it has been, this period merits the name of the experimental and scientific period.

In the Papyrus Ebers, an Egyptian medical manuscript already old in the time of Moses, polyuria is mentioned. Hippocrates, 460-377 B. C., failed to make mention of a symptom complex which could be clearly recognized as diabetes. Possibly the first clear mention of the disease is noted in the work of Aulus Cornelius, Celsus, 30 B.C. 50 A.D. He wrote as follows: "When the urine, even in excess of the drink and flowing forth without pain, causes emaciation and danger, if it is thin, exercise and massage are indicated, especially in the sun or before the fire. The bath should be infrequent, the food constipating, the wine sour and unmixed, in summer cold, in winter lukewarm, but everything in the smallest possible quantity. All things are to be avoided that are accustomed to increase the urine." Claudius Galen, 131 A. D., saw two patients and introduced two ideas. First, diabetes is a weakness of the kidneys; second, the urine consists of unchanged drink. Avicenna, 980 A. D., was the first to describe diabetic gangrene.

The first chemical experiment was performed in 1493 by Aurelius Paracelsus, who evaporated a measure of the urine and found

that it yielded four ounces of salt. He concluded that diabetes is a systemic disease characterized by the formation of an abnormal salt in the blood. Willis held that diabetes is a thinning of the blood, and foods which tend to thicken the blood should be used, i. e., starch, rice, milk, gums. He also used lime-water.

Mathew Dobson, following the lead of Willis, that diabetic urine is sweet to the taste, first demonstrated the sweetness to be due to sugar. Cullen, 1709, was the first to regard diabetes as a disease of the nervous system.

John Rollo, 1796, held that diabetes is a disease of the stomach, characterized by increased activity of the organ with the production of an abnormal gastric juice and that the saccharine matter is formed in the stomach from vegetables and starches. He therefore advocated a meat and fat diet. He also used drugs designed to quiet the movements of the stomach, such as ammonium sulphide, opium, digitalis, tobacco. His favorite diet was game which had been long kept, and rancid fats. Rollo's patients did not relish this diet and actually refused to take but a small part of their rations. They usually improved while on the rigid diet and, unknown to him, Rollo might be given the honor of first introducing the principle of under-nutrition in the treatment of diabetes.

Claude Bernard, while contributing little directly to the treatment of diabetes, deserves marked mention for his careful and extensive physiological researches by which he not only founded modern ideas of carbohydrate metabolism but clearly established the value of animal experimentation.

Bouchardt, 1806-1886, did much to correlate the available data of the time and with his added observations, formulate clear, definite, clinical criteria by which the physicians of his day could handle their diabetics intelligently. He introduced green vegetables and also showed that carbohydrate tolerance was raised by exercise.

Then follow numerous brilliant contributors. Kussmaul, in 1874, gave the first classical description of diabetic coma. Cantani, who thought atrophy of the pancreas to be a result rather than a cause of diabetes, believed in feeding a low carbohydrate, high fat diet and thought moderate glycosuria with a feeling of well being was much better than under-nutrition with no glycosuria.

It is difficult to decide who was first to introduce the idea that diabetes is a disease of the pancreas. Bouchardt names the following men as describing gross lesions in the pancreas: Cawley, Elliotson, Bright, Gree-senger, Hartsen, Friedricks, Van Reckling-hausen, Klebs, Kuss, Cantani, Fles, and Hass.

*Read before the Jackson County Medical Society (Kansas City, Mo.), May 15, 1923.

Probably Baumen was first to set up the hypothesis that all diabetes is pancreatic in origin. The careful clinical work of Von Noordon and Naunyn is well known, the idea of carbohydrate cures of Von Noordon being especially interesting. Possibly most of us have at some time or another used his oat meal cure.

Opie's masterful work on the histology of the pancreas in diabetes stimulated much work and many valuable contributions.

Frederick Allen, to whom credit should be given for establishing a definite basis both for metabolism in diabetes and for scientifically controlled methods of treatment, probably has done more to discourage fanciful hypotheses and to encourage matter-of-fact research on the subject of diabetes than any other man. As Jocelin has justly said, until some more potent remedy can be proved to be beneficial in the treatment of diabetes, Allen's principle of under-nutrition must stand as the most rational method of coping with the dreadful disease.

To Woodyatt credit must be given for demonstrating sugar tolerance by graduated and timed intravenous doses and also for his excellent method of calculating available carbohydrate and ketogenic properties in given rations.

Newburg and Marsh have resurrected the old idea, first brought to light by Rollo and later broadened by Von Noordon and Naunyn, of low carbohydrate and high fat diets.

The amazing fact gleaned by a review of the tremendous volume of careful work done in the past is that diabetes, in our present state of knowledge, presents one of the most baffling problems in medicine. Little wonder then that the discovery by F. G. Banting of a pancreatic extract capable of reducing blood sugar, relieving acidosis, and above all bringing patients in diabetic coma back to life, has utterly amazed not only the entire medical world but the laity as well.

Dr. Frederick Banting first conceived the idea of preparing a potent extract from atrophied pancreas and carried it out successfully in collaboration with C. H. Best and later with I. B. Collip, E. C. Noble, J. Hepburn and J. K. Latchford. The experimental work was done in the Department of Physiology of the University of Toronto, under the direction of Professor J. J. R. Macleod.

In November, 1920, while reading an article dealing with the relation of the islands of Langerhans to diabetes, Banting was struck by a passage dealing with a resume of degenerative changes in the acini of the pancreas following ligation of the ducts. Advantage might be taken of this fact to prepare an active extract of the islet tissue, the subsidiary

hypothesis being that trypsinogen or its derivatives was antagonistic to the internal secretion of the gland. The failures of other investigators in this much worked field were thus accounted for. Banting consequently ligated the pancreatic ducts of dogs and after allowing sufficient time for degeneration of the acinal cells, the dog was chloroformed, the pancreas quickly removed, sliced into thin pieces, placed in a chilled mortar with Ringer's solution. This extract, if kept at ice-box temperature, remained potent for ten days and was capable of lowering the blood sugar of diabetic animals. The extract was found to retain its potency better in .1 per cent. acid solution. It was also noted that boiling destroyed the product.

In November, 1921, Dr. Banting noted that the fetal calf pancreas under five months development did not contain pancreatic juice but did contain internal secretion. Preparing an extract of fetal calf pancreas in a similar manner to that described, he was able to obtain an extract from 50 gm. tissue in 250 cc. Ringer's solution made .1 per cent. acid with HCl, 15 c.c. of which would reduce the blood sugar in a 10 kg. dog from 400 to 150 mg. in three hours. At this time it was found that alcohol could be used as an abstractive, the active principle being soluble in alcohol. This suggested the possibility of extracting the whole gland. Consequently the pancreas of a beef was macerated in 95 per cent. alcohol immediately after death. After standing for 12 hours the liquid was squeezed out and filtered and dried in warm air current, the resistance being taken up in salt solution. The solution was found to be quite as potent as the preceding extracts. At this stage, Dr. Collip, Professor of Biochemistry at Edmonson University joined Banting and Best and helped them prepare protein-free, non-toxic, stable extract which, with certain modifications made by the research laboratory of Eli Lilly and Co., has made possible the advances made in diabetic therapy to date. The extract has been copyrighted under the name of "Insulin" in Canada and "Tletin" in the United States.

The first patient on whom insulin was used was a physician, age 29, with diabetes of six years duration. On a diet of 10 gm. carbohydrates and 1200 calories, the urinary sugar was 15 to 30 grams with a blood sugar of 280 mg. per 100 c.c. This patient showed a marked decrease in blood sugar, cessation of glycosuria and gain in weight, even with a non-liberal diet, following the use of insulin.

Early in the work it was noted that severe reactions, consisting of faintness, headache, nausea and sometimes convulsions followed the use of insulin. Upon investigation it was

noted that, if the blood sugar was reduced below 50 mg. per 100 c.c., these symptoms were likely to ensue. This fact, of course, demonstrated the necessity of first standardizing the dosage of the product in terms of its ability to reduce the blood sugar, and next the necessity of knowing definitely the blood sugar of the patient who was to receive insulin. As a tentative basis for the physiological assay of insulin, Dr. Banting considered that one unit equals the number of cubic centimeters of insulin which causes the blood sugar of normal rabbits to fall to 45 gm. per 100 c.c. within four hours. Very little has been published on the clinical use of insulin, therefore the data submitted and the deductions made are based on communications with men using insulin in other clinics and with the help and advice of Dr. Ralph Major and from personal observations.

At first we had hopes that i'letin might furnish a cure for diabetes and that the problem of scientific diabetic dietetics would become much easier, but we soon found that i'letin, to be of real service, must be combined with the most careful dietary control.

We always have had and probably always will have a certain class of patients who pass varying amounts of sugar and who present none of the classical signs of diabetes. Certain of these patients have normal glucose tolerance curves and for lack of better nomenclature are classified as renal glycosuria. Certain cases pass sugar in their urine and have typical diabetic tolerance curves and still don't conform to the clinical picture of true diabetes. These patients usually go along in comfort for a long time and can be controlled by moderate dietary restrictions. They usually are over weight and over forty years of age. Many of them have been called arterio sclerotic diabetes and possibly such a classification is not far wrong.

Certain patients, who have arterial hypertension with signs of renal insufficiency, show at times glycosuria without other symptoms. I became interested in this class of patients some months ago and found several who ran consistently high blood sugars with comparatively little or no sugar in the urine, in fact, one patient failed to show glycosuria when her blood sugar was below 280 mg. per 100 c.c. She had definite signs of kidney insufficiency. The literature is full of just such cases. Then we have the true diabetic, who is emaciated, irritable, loses weight, suffers from thirst, polyuria, boils, pruritis and who finds it impossible to maintain a comfortable existence, no matter how carefully he diets or what therapeutic measure he tries, and sooner or later develops coma and dies. Last we have the juvenile diabetics, whom we have always looked upon

as fatal cases. It is with the last two types that i'letin promises to be of most service and to which I shall confine myself primarily.

We know that i'letin will reduce blood sugar, raise the CO₂ combining power of the blood plasma and occasionally bring patients out of coma, but we don't know how lasting the results will be or exactly what course to pursue after the alarming symptoms have subsided.

At present there are two general plans, both of which have good and bad points. The first is that of feeding the patient a comfortable diet and controlling his symptoms with i'letin. This procedure is usually followed in severely emaciated individuals and juvenile cases. These cases can be made symptom free, will gain in weight but usually pass varying amounts of sugar in their urine and will run elevated blood sugars. The other plan is to adhere more closely to the orthodox manner of diabetic treatment, namely, that of attempting to build the tolerance slowly on a basis of Allen's principle of pancreatic rest and using small, frequent injections of i'letin, calculated to supply enough active principle to care for food in excess of established tolerance. Ordinarily I believe the latter plan to be the most logical because, in our present state of knowledge, i'letin has much in common with all other new discoveries, namely a certain indefinite definiteness which we do not exactly understand and there is a possibility that the injudicious use of alkalis in diabetic acidosis disturbs the acid base equilibrium.

So far we have used no alkali in any of our cases, and as a general rule the acidosis has been relieved in proportion to the glycosuria and hyperglycemia. Recently considerable interest has been expressed in the work of Newburg and Marsh, who have found consistently good results by the use of low carbohydrate, low protein and high fat diets. In the present issue of the *Archives of Internal Medicine*, they tabulate new lines of evidence to substantiate their ideas. Allen has long since demonstrated the danger of high fat feeding in experimental animals and also presents in his monograph, cases which apparently show in a fairly definite manner that patients develop acidosis and uncontrollable glycosuria on high fat diets. Woodyatt has furnished a valuable formula which attempts to calculate the proportion of fat to available carbohydrates which diabetics can metabolize. When we consider how variable different individuals are in their ordinary physiological functions, it strikes me as being rather untimely to attempt a concrete mathematical formula to which all patients can be made to adhere. In fact, we all know that in normal individuals, marked differences in total food requirements exist and I have diabetics who maintain weight on

25 calories and others who lose weight on 35 calories per kg. body weight. Therefore in this series of patients I have attempted to fix carbohydrate-fat ratios on the basis of individual ability of the patients to metabolize different foods, utilizing the fact that in diabetic animals food is metabolized as follows:

1. Carbohydrate, 100 per cent. glucose; 0 per cent. higher fatty acid. Protein, 58 per cent. glucose; 46 per cent. higher fatty acid. Fat, 10 per cent glucose; 90 per cent. higher fatty acid.

2. That fat is burned in the fire of carbohydrate metabolism.

3. That acid bodies are derived from the incomplete combustion of fat.

4. That acidosis develops when the ratio of available fatty acid to available carbohydrates exceed 1:2.

Last fall I reported the results of an attempt to develop a method by which we might determine in individual cases the ability to burn fat. Drs. Ralph Major and Russel Haden offered valuable advice and suggestions. Working on the hypothesis that the total amount of carbohydrate completely metabolized by an individual case would determine the amount of fat which we might theoretically and, as a matter of fact, practically expect this patient to metabolize without acidosis, we can easily calculate the amount of carbohydrate and protein in the diet, but we are not sure all patients metabolized the same proportion, that is 58 per cent. of protein as carbohydrate. Therefore we are confronted with the problem of determining each severe diabetic patient's ability to burn protein as carbohydrate.

We gave protein meals, namely 185 grams of chopped beef, made blood sugar curves in a similar manner to those made following glucose meals and those patients who reacted with a definite elevation in blood sugar curve, we assumed were able to metabolize a large proportion of their protein as glucose, approaching in some cases Woodyatt's 58 per cent. and consequently should be able to tolerate relatively high fat diets while those patients who failed to react with definite elevations of blood sugar were kept on low fat diets. In so far as our experience has gone, namely thirty cases to date, this method has proved entirely satisfactory.

In the following series, I have chosen cases coming under the different classifications of diabetes. I have attempted to show graphically the course under both general plans of i'letin therapy outlined above and have tried to show the value of determining, in individual cases, the ability or inability to tolerate diets high in fat.

Fig. No. 1. Indicates the blood sugars and CO₂ curves at three hour intervals following the use of a single dose of 30 units of insulin.

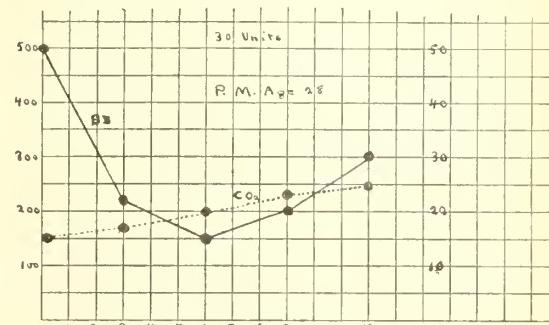


Fig. 1.

Fig. No. 2. Shows a marked reduction in blood sugar with 50 units insulin. This patient was carried into the hospital in a semi-comatose condition about nine o'clock with an exceptionally high blood sugar. The next morning he was sitting up smoking and talking with the rest of the patients in the ward.

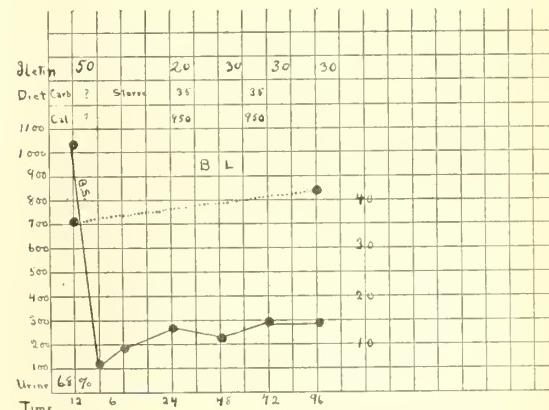


Fig. 2.

Fig. No. 3. Represents the course of a 17 year old girl who had been on a very restricted diet for the past six months with

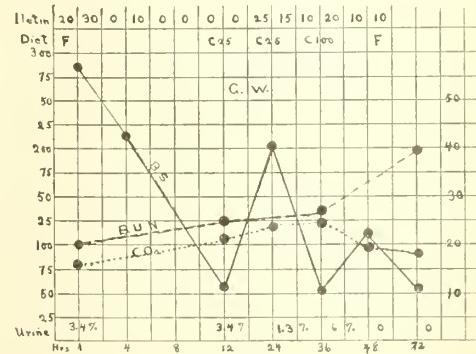


Fig. 3

practically a starvation diet for the past three weeks. She went into coma at three o'clock in the afternoon and was seen at ten o'clock in the evening. She was given 60 units of insulin with a drop in blood sugar to 55 in ten hours. At one o'clock in the morning she became conscious. She had a definite nephritis as the urea nitrogen curve indicates and developed a double, lower lobed pneumonia. She died with a blood sugar of 55 mg. and

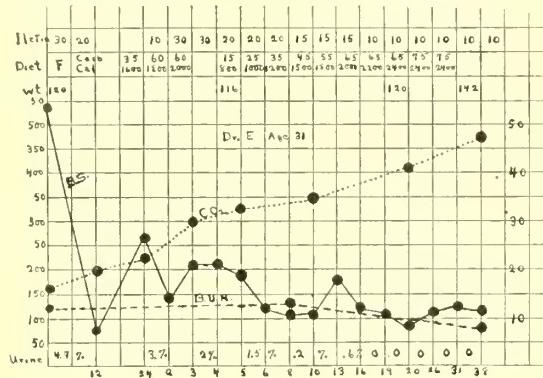


Fig. 4.

at post mortem we found double lower lobed, croupus pneumonia with acute parenchymatous nephritis.

Fig. No. 4. Represents the course of a young physician, 30 years of age with diabetic history of 2 years duration. He had been able to control his symptoms fairly well by diet but was markedly undernourished. He developed influenza six weeks before admission and since that time his tolerance has been practically nil. He entered the hospital in a semi-comatose condition and was feeling fine next morning. His course as you see is quite favorable and his present weight is 147 pounds. He has been on 75 gm. carbohydrate and 2400 calories since he left the hospital. He has been busy and says he feels better than any time during the past two years.

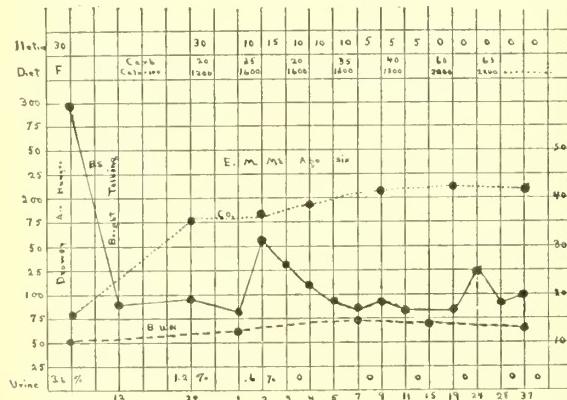


Fig. 5.

Fig. No. 5. This is the most remarkable patient in my series of 30 insulin cases. This little girl had been going down hill for the past four months and a diagnosis of diabetes had been made about five days before admission to the hospital. She could not sit up nor could she answer questions. There was marked air hunger and we thought she would likely die. However on very small doses of insulin and over a remarkably short period of time she has made a remarkable recovery. She has had 75 grams carbohydrate and 2200 to 2400 calories for the past seven weeks, with no i'letin. She has gained in weight and strength and seems to be in perfect health. Of course it will be quite some time before we can determine whether or not this patient is cured.

Fig. No. 6A represents the mean of blood sugar curves on four normal students following the injection of 185 gm. chopped beef.

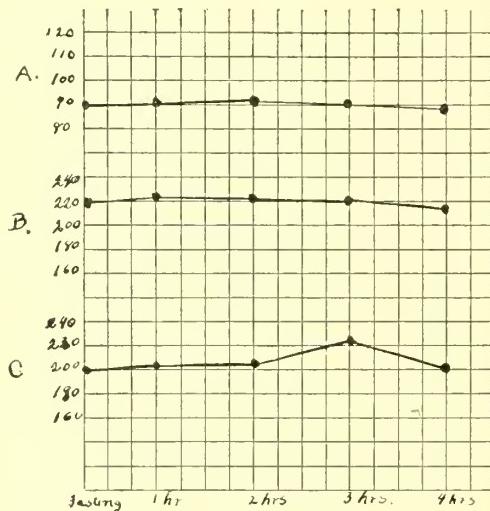


Fig. 6.

You will note no appreciable rise of blood sugar.

Fig. No. 6B represents the mean of blood curves on ten severe diabetic patients. You will note that these patients failed to burn any of the protein as sugar and we concluded that they would not do well on high fat diets. This contention proved to be correct. One case in fact would develop glycosuria and acidosis in 24 hours following 15 gm. increase of fat in his diet.

Fig. No. 6C represents the mean of the blood sugar curves in fifteen severe diabetics, in which the curve showed that these patients were able to metabolize a portion of their protein as sugar and consequently should be able to tolerate relatively high fat diets. Their subsequent course has demonstrated this contention to be true. An interesting point is

the fact that the apex of their sugar curves following protein meals is later than that found after glucose meals.

I attempt no conclusions. Insulin therapy is young and our experience has been limited. I am sure that as more cases are reported our ideas will become more clearly crystallized and that better methods of treatment will be instituted than those now used.

713 Lathrop Building.

NEW METHODS OF DIAGNOSING EARLY PREGNANCY *

WENZEL C. GAYLER, M. D.

ST. LOUIS

One of the most embarrassing things that a physician is called upon to explain is his inability to make a diagnosis of pregnancy early. Repeatedly we have explained to a patient that she is probably pregnant, that an accurate diagnosis of pregnancy is impossible at the very beginning, and that another examination would be necessary in thirty days. After the thirty days have passed, however, we may still be unable to make a positive diagnosis. I strongly advise that every possibly pregnant woman be examined at once, even though the history suggests a pregnancy of one or two weeks. In this manner you will often discover a pregnancy of three or four months.

Sudden amenorrhea in a woman who had been exposed to pregnancy and who had always been regular, does not always mean pregnancy. Engorged breasts from which fluid can be expressed may be caused by other things. Even nausea is not a sure sign, as other conditions may cause a vomiting that simulates the vomiting of pregnancy. The sudden disappearance of nausea following the injection of corpus luteum is a valuable symptom of pregnancy, but it is not infallible. The presence of all the above symptoms make an almost certain diagnosis of pregnancy, but there is still a possibility of a mistake. Difficult as it is to diagnose early pregnancy when one or more of the above symptoms are present, how very much more difficult it is to exclude pregnancy positively in the absence of all these symptoms.

The bimanual examination must be made with extreme care, preferably in the morning before breakfast, with the bladder and rectum completely empty. Even a small quantity of urine in the bladder increases the difficulties tremendously. After all these precautions have been taken, even the man who has developed a good technic by making daily bi-

manual examinations over a period of years is usually unable to make an early diagnosis.

Some years ago when the Abderhalden test was given to the profession the obstetrical world became quite interested and hoped that some of its troubles had been removed. This test has not been entirely abandoned although it is of doubtful value. Its most ardent supporters admit that it is of no value during the first month of pregnancy, this being the time of all times when the test should be of most value. The Abderhalden test is a very delicate one that can only be made by an experienced technician in a well equipped laboratory. It is based upon the fact that certain specific fermenters are formed in the blood which convert certain albumins (not normally present) into peptones and amino-acids. The test consists of subjecting a piece of placenta to the blood serum of a suspected woman. If protein derivatives can be demonstrated the woman has placenta fermenters. If she has placenta fermenters she has a placenta and is, of course, pregnant. The fact that the test may later be of value in diagnosing cancer, tuberculosis and other conditions, and the fact that the test seems to be positive in children less than seven days old, does not help us in our search for a positive early diagnosis of pregnancy.

The X-ray, which may be of value in later pregnancy, is of no use during the first six weeks when the sugar tests are supposed to be particularly reliable.

It has been known for a long time that pregnant and puerperal women have occasional glycosuria far more frequently than other people. As far back as 1856 Blot called attention to this fact, but he made no practical use of his discovery.

Anyone who makes it a rule to examine all specimens of urine for sugar as well as for albumin has surely been startled by the frequency with which sugar is found in the urine of women in the early weeks of pregnancy. It has been observed, for example, that the glycosuria, which may come to anyone after the ingestion of a large amount of carbohydrates, is far more liable to come to the pregnant woman than to the non-pregnant or to the male. This alimentary glycosuria is also influenced by hyperthyroidism, brain trauma, primary liver disease, incipient diabetes and other conditions. The glycosuria of pregnancy is not accompanied by a high increase of the blood sugar.

True diabetes may occur during pregnancy, starting either before or during pregnancy. This is a very serious complication of pregnancy, but has nothing to do with the test and must be excluded.

* Read at the sixty-sixth annual meeting, Missouri State Medical Association, Joplin, May 8, 9, 10, 1923.

Frank and Nothman published an exceedingly interesting paper in 1920 that started investigations throughout the world. They described a series of tests on twenty-two women, some of whom were pregnant and some of whom were not. Those who were pregnant were in the very early weeks of pregnancy when a diagnosis by other means was impossible. These men did an unbelievable amount of hard work and drudgery.

The suspected woman was given no breakfast. She was then catheterized and if the specimen was free from sugar she was given, by the mouth, three ounces (100 gm.) of glucose dissolved in water or weak tea,* a blood-sugar test having been previously made. She was then catheterized every fifteen minutes and the urine examined for sugar. If sugar was found another blood-sugar test was made between two catheterizations both of which showed sugar. If the blood-sugar at this time did not exceed a certain percentage the woman was positively pregnant.

The positive test depended, therefore, on the appearance of sugar in the urine of a woman who had previously been sugar free together with the maintenance of a low blood-sugar percentage. Uncomplicated pregnancy does not increase the blood-sugar percentage. The blood examination was advisable in order to exclude toxic thyroids, latent diabetes and diseases of the liver.

They were wonderfully successful, as was demonstrated some weeks later when the diagnoses were confirmed in other ways. It is easily to be seen that the test as they used it, is far too complicated to be used by the ordinary obstetrician. They even seem to have made the work unnecessarily hard for themselves and for their patients. Why should they be subjected to catheterization nine times in two hours when urine can neither lose nor acquire sugar in its passage through the urethra? Another objection to the test is, that a possibly pregnant woman, who is probably nauseated, would hardly care to swallow three ounces of glucose, which is *very sweet*, before breakfast.

All sugar tests were made with Nylander's solution, which is probably the quickest and easiest sugar test we have. The positive reaction is not as reliable as the copper sulphate tests, but the negative is entirely reliable and the positives can easily be re-examined with Fehling's or Haines' solutions.

Welz and Van Nest, of Detroit, reported a series of tests in January of this year. They had no success with the original Frank and Nothman technic till they increased the dose

of glucose from 100 gm. to 150 gm., and gave a very plausible explanation for the necessity for making this change. They believe that because the women of Germany have been undernourished for nine years, a smaller quantity of glucose will upset their carbohydrate metabolism than in the well nourished American woman. They were extremely successful with the larger dose and rarely failed to make a correct diagnosis in a large number of women. They also seem to have established the fact that the test is only reliable during the first three months of pregnancy. After that time they had 70 per cent. failures.

Bauer, in September, 1922, added materially to our fund of information. He thinks that the test may be of value in the diagnosis of extra-uterine pregnancy both before and after the period of rupture. This, if it proves to be correct, may throw a new light on many acute abdominal conditions in women. No abdominal surgeon can correctly diagnose extra-uterine pregnancy every time. I have repeatedly changed my diagnosis after the belly was opened. He also found that freshly castrated women and women in the early menopause often give a positive reaction to the glucose test. He concluded, therefore, that this temporary glycosuria of pregnancy is related to a temporary ovarian hypofunction.

Nürnberg says that patients in the process of abortion, give a positive reaction as long as most of the placenta is attached, the same being true of extra-uterine pregnancy. He also claims that a woman threatened with abortion with cervix closed who gives a positive reaction might still save the fetus and carry to term. One who gives a negative, however, already has a completely detached placenta, the fetus is surely lost and we can act accordingly.

We have then at our disposal a very simple, accurate, pregnancy test, provided we eliminate the blood-sugar examinations and provided we permit the women to void instead of submitting them to catheterization every fifteen minutes for three hours. When we omit the blood-sugar examinations we do not exclude other conditions that may produce glycosuria under these circumstances making the simplified test only valuable if negative. In case of a positive reaction we know that pregnancy is almost certain, and can proceed with the blood tests. Even though this test be eventually abandoned in its present form it will have stimulated many investigators to work and will, therefore, have been of great value to the human family.

Instead of glucose Kamnitzer and Joseph used the intramuscular injection of phloridzin. Phloridzin, they found, will produce glycosuria in anybody if given in large enough doses

* It has been demonstrated that 200 gm. of glucose can be ingested by the normal individual without glycosuria resulting.

(0.01). They experimented with decreasing doses till they found that 0.002 gm. of phloridzin never produces glycosuria in the normal individual, but always produces it in the pregnant, provided they are in the first three months of pregnancy. They reported more than 300 cases, did a great amount of work and seem to have made their point very neatly.

Phloridzin is a glucoside that is extracted from the bark of the root of the cherry, apple, pear and plum trees. Its principal use heretofore has been the artificial production of glycosuria in dogs and rabbits for laboratory demonstration purposes. Phloridzin has also been recommended as far back as 1862 as a tonic and anti-periodic, in five-grain capsules.

The phloridzin test is made as follows: The suspected woman reports for examination without having had any breakfast and voids her urine. If it contains sugar, she is not a fit subject for this examination. If it does not contain sugar, she is given a hypodermic injection of 0.002 of Phloridzin and is ordered to drink two glasses of water. Unless she drinks a large quantity of water, it will be hard for her to void, which will make the examination difficult. The positive cases usually show sugar in the first specimen voided after injection, that is, in the first half hour. No case is called negative unless the urine remains sugar free for three hours. The success of the phloridzin test depends upon the absolute accuracy of the dosage. Should the dose be a little too large, a positive reaction does not mean anything. Should the dose be a little too small, the negative dose which will surely follow does not mean anything. I have been using the ampules prepared by Schering & Glatz. They contain 0.002 with a small quantity of novocain in exactly one c.c. of solution. If you spill a drop or two, or if some of the solution adheres to the syringe, the test doesn't mean anything.

Zondek reported in May the result of his work on a large number of patients. He established the fact that pregnant women who have lost blood since the pregnancy started always give a negative reaction, even though the pregnancy goes on to term. Just why this is so we do not know because we do not know just what it is that upsets the woman's carbohydrate metabolism during pregnancy nor do we know why the ingestion of glucose or the injection of phloridzin should more completely upset this balance. One point of importance to remember here is that bleedings taking place after pregnancy starts do not seem to effect the glucose ingestion test. At least I can find no reference to it in the literature. Zondek also investigated the effect that hyperthyroidism has on the reaction, and is at present work-

ing on a combination of phloridzin and thyroid extract to make the test more delicate if possible. It seems, according to our limited knowledge, that bleedings of uterine origin during pregnancy which do not lead to abortion interfere with the phloridzin test but not with the glucose test. We might assume that there is something radically different about the interference with the carbohydrate metabolism that follows glucose ingestion and that, that follows phloridzin injection.

At the present time there is a large amount of work being done in the clinics throughout the world with glucose, phloridzin, adrenalin and thyroid extract, as well as with combinations of these agents. No matter what the ultimate result will be, Frank and Nothman, who started the glucose tests on their twenty-two patients, are entitled to the thanks of every man who practices obstetrics.

My personal experience is limited to twelve cases. Seven of these women were pregnant and five were not, as was proven by their subsequent histories. Several women were unable to take the test because they already had glycosuria. It is true that the glycosuria of pregnancy disappears promptly following slight dietetic changes. Still I considered these women unfit because their balance was so easily upset. Possibly a still smaller dose of phloridzin would have been effective in these cases, but the test would have had no value. All five of my non-pregnant women gave a negative reaction. Five of my pregnant women gave a positive reaction to Fehling's and Nylander's solutions within a half hour after injection. The other two pregnant women gave a negative reaction, and I found out later that at least one of them was an unfit subject for the test. This one had had several abortions, had had chronic inflammatory pelvic disturbances, and had bled repeatedly since the pregnancy started. I was at a complete loss to understand the findings in this case till Zondek's paper was published. He established the fact that bleedings, no matter how slight, that take place after pregnancy starts, *always* induce a negative reaction whether the patient aborts or not. The last patient had acute gonorrhea of the urethra and cervix but not of the vulvo-vaginal glands. She is surely pregnant but gave a negative reaction. I have been unable to find in the literature a report of either the glucose or phloridzin test used on a woman who had acute gonorrhea.

The possibly pregnant women who come to the office or clinic for diagnosis, can be roughly divided into two classes: (1) those who want to be pregnant and (2) those who do not want to be pregnant. There is no such thing as a woman who does not care whether or not she is pregnant. The women who want to be

pregnant are mostly young married women who have had no cervical infections, who have never aborted and who have never had a pathological condition in the pelvis.

The second class, the one that does not want to be pregnant, presents an entirely different picture. Many of these women have had previous abortions. Many have had pelvic inflammatory disturbances, and some have had endocervicitis, the most chronic of all gynecological disturbances. Some of them, because of habitual abortion, bleed after pregnancy takes place, making the test impossible. The women of this class, even when they do not bleed, seem to be poor subjects for the phloridzin test. Just how they would react to the glucose ingestion test, I do not know. I have never known the phloridzin test to fail in a woman who has had no previous abortions, who has never had a cervical or pelvic infection, and who has lost no blood since the possible pregnancy started. Unfortunately this class is not so eager to undergo the test as is the other class. These women of the desirable class are often content to await developments quietly.

Two of my patients promptly had abortions performed when I told them that they were pregnant, and it has been suggested to me that we should not make a diagnosis of pregnancy early, if we know that the woman will immediately go to the abortionist. This sort of reasoning is probably wrong, as the woman would seem to have a right to know what her condition is regardless of what she intends to do.

In the last few weeks, since this paper was written, two papers treating of phloridzin glycosuria in pregnancy, have been published. One was by Philip Williams, of Philadelphia, the other by Burger, of Leipzig. Williams' paper was a reprint of a paper read by him on October 2 before the Gynecological Society of Philadelphia. He is very unfortunate in that he did his work before the limitations of phloridzin were known. His fourteen women included normal pregnancies, threatened abortions, incomplete abortions and extra-uterine pregnancies. His results were bad and he seems to have a bad opinion of the method. Burger's cases were picked with care. He examined fifty-five women and was 95 per cent. successful with both the pregnant and the non-pregnant.

RECAPITULATION

The Abderhalden test is a beautiful plaything of great scientific interest, but in its present form is of no value to us in the diagnosis of early pregnancy.

The X-ray has future possibilities, but will

probably never help us in making an early diagnosis.

The glucose ingestion test has some drawbacks, but it is very accurate and will surely be of value in the future, possibly in a modified form.

The phloridzin test is extremely simple of application, is fairly accurate and very fascinating.

The complete history, with a careful bimanual examination is still our principal means of making a diagnosis of early pregnancy, and will probably never be entirely discarded. The making of a bimanual examination is a very high art, and the technic can only be acquired after years of continuous practice. This is an absolutely necessary accomplishment of the obstetrician and will probably always remain so.

DISCUSSION

DR. HENRY SCHNEIDERMAN, Kansas City, Mo.: I was hoping that Dr. Gayler would say more about the etiology of pregnancy glycosuria in which I am particularly interested at present. I have recently studied three cases of pregnancy glycosuria and have obtained some very interesting results. One-hundredth of a grain of atropin sulphate administered before the ingestion of one hundred gms. of glucose would inhibit glycosuria. The inhalation of oxygen right after the ingestion of glucose would produce similar results.

Since I have been able to obtain similar results with alimentary renal glycosurias I feel that pregnancy glycosurias have the same etiology. Since atropin sulphate has a specific depressing effect on the vagi nerve endings it is possible that the etiological factor involved in these glycosurias is an inhibition of the vagi nerve endings of the liver cells, thus interfering with glycogenesis.

DR. W. C. GAYLER, St. Louis, closing: We do not know just what causes the glycosuria of pregnancy. We do not even know that the test will be of value in future. At present it is an exceedingly interesting thing, and the investigation that is being produced by what little we know is bound to lead to something—to what, I do not know. At any rate, it is possible that the time will come when we can make a diagnosis of pregnancy in the very beginning—within a week after the time pregnancy starts. That would be a most wonderful thing, not taking into consideration the effect it will have on extra-uterine and pathological pregnancies.

REFERENCES.

- Dublin Quarterly Journal, 1922.
- Bauer—Zentralblatt v. Gynakologie, Sept. 2, 1922.
- Frank—Klinische Wochenschrift, Oct. 14, 1922.
- Muenchener Medizinische Wochenschrift, Dec. 10, 1922.
- Kamnitzer and Joseph—Medizinische Klinik, Berlin, March 26, 1922, 18, No. 13, p. 396.
- Zondek—Zentralblatt v. Gynakologie, Leipzig, May 27, 1922.
- Holst—Zeitschrift v. Klinische Medizin, Berlin, Nov. 29, 1922, 95, page 394.
- Gottschalk and Strecker—Klinische Wochenschrift, Berlin, Dec. 9, 1922, Vol. 1, No. 50, p. 2467.
- Welz and Van Nest—American Journal of Obstetrics, January, 1923.
- Folin and Burglund—Journal of Biological Chemistry, LI, No. 1.
- Nurnburger—Deutsche Medizinische Wochenschrift, Sept. 22, 1921.
- Burger—Zentralblatt f. Gynakologie, Leipzig, Feb. 17, 1923.
- Williams—American Journal of Obstetrics and Gynecology, April, 1923.

Wall Building.

PREGNANCY AND TUBERCULOSIS*

OTTO H. SCHWARZ, M.D.

ST. LOUIS.

The subject of tuberculosis and pregnancy is one which has been rather widely discussed. The points of greatest discussion have been the influence of pregnancy on the disease and the question of how each type of case should be treated.

A study of the literature on the subject will readily bring out that the deleterious effect on the disease by the pregnancy and the puerperium has received most attention and for that reason it is also most frequently suggested that termination of pregnancy early in active cases of tuberculosis will bring forth by far the best results. It must be stated here that in connection with other complications of pregnancy, for example, pernicious vomiting, cardiac disease and diabetes, early abortion has also been suggested freely in the past. It is a well known fact at present, owing to the great advance in medical treatment of these latter conditions, that their dangers have been greatly minimized and it is only the unusual condition that warrants any thought of early intervention. That this condition will obtain in the case of pregnancy and tuberculosis in the near future, I have not the slightest doubt.

The markedly improved prenatal care, the great interest of its being exercised by obstetricians as a whole to recognize tuberculosis in the pregnant woman and on its recognition, the careful and intelligent treatment, particularly of tuberculosis, will do much to lessen the ravages that have been experienced with this disease in pregnancy. I believe that the fault has been chiefly with the obstetrician, and by the obstetrician I mean anyone who is handling an expectant mother.

In the first place the obstetrician who is dealing with clinical material has undoubtedly given this subject too little attention in the past and therefore is undoubtedly responsible in many instances for the flare-up of tuberculosis during the puerperium. The general practitioner who is active as an obstetrician among the poorer classes of people, as is well known, has not, as a rule, given his patient the benefits of the best prenatal care. Thirdly, the midwives, who have little or no interest in their patients outside the management of labor, undoubtedly have a great number of pregnancies with pulmonary tuberculosis pass through their hands.

The obstetrician who takes care of the wealthier class of individuals perhaps sees less tuberculosis complicating pregnancy than any

of the other mentioned individuals. Tuberculosis and poverty run hand in hand, therefore it behooves those who take care of pregnant women of the poorer class to be more concerned in the recognition of tuberculosis in these patients.

I feel very definitely that improvement in the management of these cases must come directly from the obstetrician in his constant efforts to have the patients come as early in pregnancy as possible, and when they do appear, to make every effort to familiarize himself with their entire physical condition. In this way he can more readily interest the medical man in his problem. It may be well in any given clinic that a medical man, associated with the clinic, go over such cases as the obstetrician may deem suspicious.

With the improvement of hospital facilities and the early hospitalization of cases, I feel that it will not be long before this deleterious effect of the disease in pregnancy will be greatly minimized and that therapeutic abortion will only be occasionally considered.

I have in preparation for the discussion this evening gone over considerable literature on the subject and will briefly mention some of the existing ideas. It may be mentioned that in this country Charles C. Norris, an obstetrician, gave the subject most consideration and most of the points which are under discussion have been reviewed in his elaborate monograph. In addition I will briefly summarize our experiences with twenty-four cases which have appeared in Barnes Hospital from the year 1915 to 1922.

It is well, perhaps, to mention first the statements made in our two leading textbooks on obstetrics, namely, Williams and De Lee. Williams states that it was formerly believed that pregnancy exerted a temporarily beneficial effect upon tuberculosis, the mother improving as long as she carried the child, though she frequently succumbed rapidly after its birth. At present, however, it is generally conceded that it is almost always harmful. Moreover, the strain incidental to labor and the extreme drain upon the system, especially if the child is suckled, pulled the patient down still further, so that the final result is hastened.

In view of the fact that the tuberculosis process usually becomes exacerbated either during pregnancy or after childbirth most authorities recommend that abortion be induced as a matter of routine in all tuberculous women and that they be rendered sterile by operative means. According to Williams this appears to be a somewhat too extreme point of view but he feels very strongly that abortion should be induced in the first pregnancy occurring after the onset of the disease, or whenever it makes its appearance during the

*Read before the Trudeau Club, St. Louis, Mo., February 1, 1923.

early months of pregnancy, in order to give the patient every opportunity to place herself under such dietetic and climatic conditions as may offer every chance of curing or arresting the disease, rather than to run any risk of its exacerbation after labor. On the other hand, when the pregnancy is far advanced, Williams does not consider the induction of premature labor justifiable as experience teaches that its effect upon the patient is quite as deleterious as labor at term, while the chances for the child are greatly diminished, excepting where the mother is so ill that it seems improbable that she will live until the end of pregnancy, the operation may be performed solely in the interests of the child.

De Lee also emphasizes the deleterious effect of pregnancy on the disease and in discussing the treatment suggests that during pregnancy the recognized medical treatment should be carried out and asks the question, "Should pregnancy be terminated because the mother has pulmonary tuberculosis?" He points out that three positions are held: one, that pregnancy should always be terminated as a protective method; two, that it be never terminated; and three, that the case be individually treated and the gestation brought to an end only when certain symptoms indicate it. He is inclined to a more active treatment. He states very definitely that if tuberculosis of the lungs be manifest in early pregnancy, abortion should be induced without delay. He points out the great danger of tuberculosis associated with the vomiting of pregnancy and makes this an indication for immediate abortion.

As I have previously mentioned, the chief contributor to the American literature on this subject has been Norris and I will consider his work after mentioning a few articles which appeared in our literature previous to this publication. Malsbary, an internist, reviewed the subject in 1905 and comes to certain conclusions, although they are not apparently based on personal experience. He states that many writers report that tuberculosis is especially liable to occur during pregnancy, the disease being more frequently aroused from a latent state by pregnancy, or first recognized at this time. On the other hand, the seclusion of the patients at the time of pregnancy may place them under conditions that predispose to tuberculosis, especially through close association with tuberculous patients. He points out that it is important to keep pregnant women away from people infected with influenza or ordinary colds, since these increase the virulence of the disease. He states that tuberculous women when pregnant should come under treatment early and that they bear tuberculosis treatment remarkably well. He declares that interruption of the pregnancy is a serious matter and usu-

ally is not beneficial so far as the pulmonary tuberculosis is concerned. But the tuberculosis is not a contra-indication to this operation when required for other diseases. In early miliary tuberculosis the interruption of pregnancy should be practiced early, or not at all.

Trembley, in a paper before the Section on Obstetrics and Gynecology in the New York Academy of Medicine in 1909, states that in a series of two hundred and forty cases of study in cases which were definitely traced, 53 per cent. of the deaths occurred in cases which showed their first symptoms either during pregnancy or the puerperium, as compared to 41 per cent. not attributable to pregnancy or the puerperium. He states that pregnancy occurring in a case of an active tuberculous process is a menace to the future health of the woman and the only rational course to pursue when pregnancy occurs with tuberculosis, and where it is indicated in the early months, is a rational method of intervention. He reports a series of twenty-nine cases in which therapeutic abortion was performed but his statements as regards the final results are not particularly encouraging, eight of these cases having also succumbed. He feels that the only patients who call for hesitancy were those who had been discharged as cured and remained absolutely without symptoms for at least one year, and patients in a terminal stage with progressive signs.

Such men as Jewett, Edgar and Cragin participated in the discussion and they were all firm in the belief that active tuberculosis in the first half of pregnancy should be treated by therapeutic abortion.

Norris, in 1916, presents a thorough review of the literature and reports sixty-eight cases. He quotes Bacon as stating that thirty-two thousand tuberculous women become pregnant annually in the United States, that forty-four thousand to forty-eight thousand women of the child-bearing age die of tuberculosis every year. He discusses the susceptibility of pregnant women to tuberculosis and the influence of pregnancy on the course of the disease. He points out that most of the writers on this particular phase of the subject point out that in a vast percentage, from 50 to 94 per cent., grow worse as the result of the pregnancy.

Albech of Norway reports sixteen cases, all of which were treated in his sanatorium. Six died within fifteen months after delivery. Essenmueller reports that death or aggravation occurred in 50 per cent. of his sanatorium cases. Norris discusses at length the indications for induction of abortion in tuberculosis prior to the fifth month. He believes that in the presence of an extensive lesion, even in the quiescent stage, or even a small active lesion,

the uterus should be emptied. He states that extensive vomiting, renal insufficiency and other complications of pregnancy constitute indications for emptying the uterus. He says a much more difficult point to determine is the attitude of the physician to the patients with the quiescent lesion of moderate or small extent. Here the patient must be studied individually and he then points out that the chief dangers in this type of case is that the woman does well in the first part of pregnancy and flares up during the latter part when it is too late to do any good by emptying the uterus. As a general rule the longer the lesion has been inactive the better is the prognosis. He emphasizes that the statistics of twenty-one observers comprising one thousand cases show that 77 per cent. of women were benefited by emptying the uterus, the percentage varying from 20 to 97 per cent. The diversity of opinion regarding the treatment of this condition is evidence of itself that no ideal plan has yet been evolved. He mentions that the general trend of opinion is the interruption of the pregnancy in the early months of gestation and to non-operative treatment in the second half.

The author believes that the wise obstetrician will familiarize himself with the results obtained by others and carefully consider the source of the methods employed in compiling statistics, and that he will then individualize and empty the uterus only when it is necessary and he will not let his natural repugnance to this operation influence him to the detriment of his patient. He reports a series of sixty-eight cases in which four were appreciably improved, thirty-eight were definitely improved, twenty made worse as the result of pregnancy and six died. He states that in 94 per cent. of these cases the disease was present prior to conception.

Norris in the early part of 1922 in a monograph of gynecological and obstetrical tuberculosis again reviews the subject of pregnancy and tuberculosis. In this article, which is somewhat more extensive than the previous one, he is practically of the same opinion as regards the influence of pregnancy on tuberculosis and the methods of handling these cases. In his most recent article, which appeared in the *American Journal of Obstetrics and Gynecology* in December, 1922, he reports an additional series of one hundred and sixty-six cases. A close study of these cases from his tables will show that the deleterious effect of pregnancy on tuberculosis is not quite so apparent and his conclusions as compared with those of previous papers are considerably more guarded. He further states that the complication of pregnancy and pulmonary tuberculosis is a common one. About 20 to 30 per cent. of

mild quiescent pulmonary tuberculosis and about 70 to 90 per cent. of the more advanced cases exhibit exacerbations during pregnancy and the puerperium. It is impossible to determine with certainty which cases will bear well the added strain of pregnancy. We must individualize our patients. Moderately extensive lesions with loss of weight, fever, sweats, lack of vigor, inability to obtain proper treatment, are ill omens. The uterus should be emptied if the disease manifests any evidence of becoming active. About 60 to 70 per cent. of these cases will be benefited by the treatment provided it is employed as soon as the acute symptoms arise and provided the proper after-treatment is instituted. After the fifth month of pregnancy it is generally advisable to treat these cases expectantly.

In the recent French literature, Barr is pessimistic concerning the influence of pregnancy on tuberculosis. Very often the danger confronting the woman disappears under cover of the physiological euphoria of the second half of pregnancy. The last stage of pregnancy is unfavorable to tuberculosis just as it is to influenza, smallpox, malaria and other infectious diseases, none of which are helped by the termination of pregnancy at this late stage. The cause is not certain but Barr feels that perhaps it is due to hepatic insufficiency. Experiments on animals indicate the disastrous influence of pregnancy on the development of tuberculosis and it was interesting to see that the liver was the site of predilection in these animals as well as pregnant women. Pregnancy, according to Barr, is a serious event to any woman with active tuberculosis, a disaster in advanced bilateral cases and a very severe risk in every woman endangered by an active tuberculosis. He emphasizes the importance of the cutaneous reactions with tuberculin. Barr is conservative provided that the findings in the lungs are satisfactory. If, on the contrary, such a woman has only a feeble cutaneous reaction, or none at all, one should operate, especially if the lesion seems to have started with the pregnancy.

Pinard, who has always maintained a very conservative attitude as regards this condition, is extremely opposed to Barr's recent ideas concerning therapeutic abortion in tuberculous mothers. He says he has not seen any bad influence on gestation in tuberculous cows. He has seen many pregnant women die of tuberculosis as he has seen other patients dying from it also; he has seen healthy children borne of mothers dying of tuberculosis and contents himself by treating the tuberculous woman and separating the child after delivery and he has asked physicians to follow him and preserve

the traditions and the good name of French medicine.

Peham, in a recent paper, states that mild and non-progressive tuberculous infections are no indication for artificial termination of pregnancy. Pregnancy, parturition and the puerperium may cause a recrudescence and further advance of an extensive tuberculous process. In such cases, after long continued observation supported by physical examination, roentgenograms and the study of body weight and temperature, the artificial termination of pregnancy may be considered. The chances of success depend upon the severity of the infection at the time of pregnancy and the most favorable results are obtained when the pregnancy is terminated not later than the fourth lunar month and the lesion corresponds to the first stage of Turban's classification. The prognosis in different cases varies according to their anatomic characteristics. Artificial termination of pregnancy during the second half is not indicated.

E. Sergent, in a paper on "Tuberculosis and Pregnancy," abstracted in the *Journal of American Medical Association*, February 17, 1923, emphasizes that there are two principal types of tuberculosis to be considered. In one the tuberculosis was present before the pregnancy; in the other it became manifest during pregnancy or after delivery. In the first type three varieties can be distinguished: (1) Clinically recovered cases in which the infection flares up during the first weeks of pregnancy. Usually the women are young. An early abortion saved the lives in three such cases in Sergent's experience. In another case a pregnancy, occurring against his advice three years after an affection of an upper lobe, had been allowed to come to term, because the woman never felt as well as during the pregnancy. Ten days after delivery the tuberculous process was relighted and the patient succumbed in two months. (2) Cases with active but stationary lesions. These women, contrary to the first variety, are usually over 30 or 35 years of age. They appear to have adapted themselves to tuberculosis. These cases form the bulk of the statistics, which show that some women, even with lung cavities, can endure several pregnancies. (3) Women with active tuberculosis which becomes more acute with the pregnancy. There is no indication for abortion in these cases, because death is inevitable. The second principal type includes women with latent tuberculosis, in which distinct clinical signs did not appear before gestation. In unilateral cases, pneumothorax may be of use. Bilateral cases die. If the signs start after delivery, the prognosis is comparatively good. Sergent insists on the frequency of tuberculosis in pregnancy. In his private prac-

tice in almost 26 per cent. of eighty-nine tuberculous women, tuberculosis appeared less than ten months after delivery. In two-thirds it was the first pregnancy. It is impossible to dogmatize; cases must be considered individually.

Winter, in a monograph entitled "The Indications for Artificial Interruption of Pregnancy," in 1918, discusses the subject at great length and points out that there is definite improvement in over 66 per cent. of the early active cases interrupted early in pregnancy, that 46 per cent. of active cases in which interruption is not carried out showed definite progress of the disease. He therefore suggests early interruption in all early active cases, those cases that are chiefly in Turban's class 1. Latent cases are not an indication for interruption in tuberculosis, these only occasionally show any exacerbation during pregnancy.

My attention has been called to an article just published by Petruschy, who reports a series of cases observed during pregnancy and for a considerable time afterwards. He is impressed with the satisfactory course that these cases have run during pregnancy and after delivery. He feels that the cases in which interruption must be most seriously considered are cases in early pregnancy which are endangered by serious pernicious vomiting. He is impressed with the importance of conservative treatment. In his cases 50 per cent. with open lesions did well and 95 per cent. with closed lesions did well. In the first class 58 percent. of the children survived and in the latter class 100 per cent. survived. He emphasizes the misuse of abortion and states that he has done no abortions since 1911. He points out that therapeutic abortion without proper care of the mother subsequently helps in no way. He mentions that where abortion is done it gives the patient a false sense of security; thinking that the greatest part of the danger is over they become less co-operative, with a marked increase in the activity of their condition. He says that in most cases where therapeutic abortion is done this is the course that usually follows.

Norris emphasizes the danger of exacerbation in the tuberculous condition during the puerperium. The patient has already suffered the strain of pregnancy and has undergone what deleterious effect this exerted. Labor, by straining, etc., may have been instrumental in breaking down partially healed pathological processes and thus converted closed lesions into open ones. Another reason why exacerbations are so frequent during the puerperium is that lighting up of the pulmonary process which had almost started during pregnancy but has had time only to advance to such a stage as to attract definite attention by the time the puerperium has been reached.

It has been called to my attention in several instances that the flare-up in these cases has been chiefly in unrecognized cases during pregnancy in which the mother is allowed to nurse her baby and in which she assumes her usual duties, and as a result of the strain in addition to the normal loss of weight which occurs at this time, the drain of lactation, unhygienic surroundings, make this time a very favorable period for exacerbations. This situation emphasizes the importance of recognizing any type of lesion during pregnancy.

In going over the records of the cases of pregnancy with tuberculosis in Barnes Hospital from 1915 to 1923, there were registered twenty-four cases. Of these twenty-four cases, sixteen were referred to the obstetrical service by the Chest Clinic or outside physicians. Abortions were done in four of these cases not later than the fourth month of pregnancy, and the lesions in these cases were described as minimal and active in one instance, moderately advanced and quiescent in another, moderately advanced and quiescent in the third and moderately advanced and active in the fourth. All four of these cases did well after delivery and have been observed more or less in the Chest Clinic. One case is of particular interest because at the present time she is eight months pregnant, with apparently no activity. This case was induced when eight weeks pregnant in 1920, on the condition that she remain in a sanatorium until her disease was definitely improved or cured. She remained one month and has been reporting off and on at the Chest Clinic. Fourteen cases were delivered of living babies at term. Four of these were advanced cases that were active, three of which are now known to be dead; three were moderately advanced and active, one of which is known to be dead, and two others on which there is no information; there were two cases in which the lesion was moderately advanced and quiescent and two cases in which the lesion was minimal and active. In one case where the disease was minimal and active there was no progress during pregnancy but the patient delivered at eight months of a stillborn child, with placenta praevia. Another case delivered prematurely at seven months reported at the obstetrical clinic when she was four months pregnant and the disease was unrecognized as tuberculosis until late in pregnancy, when a diagnosis of acute pulmonary tuberculosis was made. Patient died three days after delivery and autopsy showed an acute miliary tuberculosis of the lungs, liver, spleen, kidneys and pancreas; an acute tuberculous peritonitis and pleurisy; also lesions in the ileum and colon.

There were three cases in the series that were not delivered, two of whom were out-of-town patients and were lost sight of and one

has been subsequently treated in the Chest Clinic, with her delivery elsewhere, with no apparent progress of the disease. This case was a moderately advanced case, quiescent. Two cases were latent cases in which there was no sign of activity during pregnancy.

It is quite apparent from a series so small as this that no definite conclusions can be made. It shows rather definitely, however, that the greatest number of active cases have come to the Obstetrical Service by being referred. In the entire series there were eight cases which were not referred and sixteen cases that were referred. Of the eight cases which were not referred, two were unrecognized until the patients were in active labor. Both these cases were extensive with marked activity. A third case was not recognized until the time of labor, with a marked exacerbation during the puerperium, the patient dying about one year after delivery. Five of these cases were known to the obstetricians and all did well; two were incipient and active, who were well at the time of delivery and showed no exacerbation during the puerperium. Three were quiescent cases. It also shows that in those women who went to full term there was a living child in every instance except the case of placenta praevia.

When one considers the frequency of tuberculosis as a whole in women during the child-bearing period, the cases reported must represent a comparatively small percentage of those going through our hands. That the cases that are being missed show no tendency to activity seems probable, otherwise they should be quite easily observed. That those cases which are missed are in great measure those that had exacerbations two or three months postpartum unrecognized during the course of pregnancy. It is therefore important that the obstetrician make every effort, whether in one way or another, to run down these cases in the pre-natal clinic and when they are recognized refer them to a chest man and see that the proper treatment is prescribed and each case considered on its individual merits.

I firmly believe that induction of abortion early in pregnancy in early active lesions is a definite mistake. If such cases are given immediate sanatorium treatment the progress of the disease will be checked in many instances and, further, many of such cases will be definitely arrested by the time full term is reached. After delivery the further treatment in a sanatorium is of great importance, as well as the isolation of the child. After many such cases have been studied under such ideal conditions, we will be able to say just how the disease is affected during pregnancy.

DISCUSSION

DR. J. F. BREDECK: The importance of the relationship of tuberculosis to pregnancy has not been thoroughly understood nor fully appreciated. There is no subject so important for the obstetrician, the general practitioner, and the specialist in tuberculosis. It is one of the most important fields with which the obstetrician can co-operate in the work of preventive medicine. The subject is an old one and yet reliable and accurate statistics are few, indeed. For the past three years, Dr. Schwarz and myself have been trying in a very limited way, it is true, to study this problem from both the obstetrical as well as the tuberculosis angle.

The physician specializing in tuberculosis is frequently called upon to advise the obstetrician in the matter of whether therapeutic abortion should be performed in cases of pulmonary tuberculosis. Therefore, the subject appeals particularly to the consultant. We must have clear ideas as to just what happens and just what does not happen when tuberculous women become pregnant and when they are permitted to go to full term. We must further know just what the beneficial effects are of therapeutic abortion in pregnant women suffering from tuberculosis in all stages. Many of the statistics quoted in the literature are from obstetrical clinics, taking care of ambulatory patients without adequate care of their tuberculosis. When we know that these women running temperature are not receiving bed rest, which is the first essential of any tuberculosis treatment, do we wonder why so many do badly? There is no reason why the pregnant tuberculous patient should receive less adequate care for her tuberculosis than the non-pregnant woman.

Obstetricians have been advising abortion in all stages of tuberculosis, emphasizing particularly the early pulmonary and laryngeal cases. From the studies which we have had on a few cases of early pulmonary tuberculosis and where the woman was pregnant, we have found that the disease before delivery can become quiescent and the patient show no signs of activity before, during, or after delivery. Furthermore, we have been able to see that even advanced cases with cavity formation go through their pregnancy and labor and puerperium without any activation of their disease. In reference to the laryngeal cases, we know that they are usually unfavorable cases and abortion does not materially benefit the mother. The end result usually is death. Where abortion is performed, we add only an additional death. It seems clear to me, after observing the number of cases of pregnant women with tuberculosis in all stages, that we have no right to consider them any different than the non-pregnant tuberculous women. We cannot ignore the tuberculosis treatment any more in the pregnant than we do in the non-pregnant individual. The results, with or without abortion, depend more on the stage of the disease than they do to the condition of pregnancy. We know that in advanced cases of pulmonary tuberculosis our chances are about 25 per cent. at the most of getting anything approximating cure. In the incipient or early cases of pulmonary tuberculosis, our chances are about 80 per cent. under proper treatment and supervision.

I have several X-ray plates of pregnant tuberculous women, in all stages of pulmonary tuberculosis, who have been permitted to go to term and who have been followed from six months to three years after the birth of the child. Three cases were incipient pulmonary tuberculosis which became quiescent during pregnancy with bed rest, and have been apparently well for over two years. Diagnosis in these cases was made from X-ray, clinical findings and positive sputum. One plate was that of a laryn-

geal case that died about three months after the baby was born. She was a laryngeal case with advanced pulmonary tuberculosis a year before she became pregnant. Two other plates are those of women with advanced pulmonary tuberculosis and cavity formation, and they remained apparently well one and one-half years after the birth of their child. From these cases, in all stages, I would like to have someone tell me when abortion is indicated. If we look at the question from the standpoint of vital statistics, therapeutic abortion practically doubles the mortality rate. What evidence have we that abortion prolongs the life of the mother? Many cases that I have seen, where abortion was performed, the mother died anyway. I do not feel that we have sufficiently accurate data on the value of therapeutic abortion as a life-saving procedure. From my own personal observation, I cannot see that pulmonary tuberculosis is an indication for abortion. If we accept the figures of Norris, we must come to the same conclusion. The greatest mistake is made in not discovering the tuberculosis early in pregnancy and placing the patient under adequate treatment, which means bed rest. In many cases the patient's disease can be arrested during pregnancy and the patient be permitted to get up as other women after delivery. Abortion in advanced and laryngeal tuberculosis does not save the mother and adds an additional death of the child. Incipient, or early cases, do well under adequate treatment whether they be pregnant or not.

Pregnancy and tuberculosis have a further significance for the obstetrician and general practitioner. He should have the prospective mother thoroughly trained in preventive measures against the spread of tuberculosis before the child is born. If the disease is not recognized in the mother, the child only too often is infected early and both mother and child die of the disease. The mother should be instructed thoroughly in the necessary measures to be taken in preventing infection of her child and should be warned against the intimate association with which the child rather than the dangers of breast milk. Artificial feeding is the only safe method and the mother should not handle the child if possible, and even if she must take care of the child, she must handle it at a minimum. It is noteworthy that obstetricians do not report cases of pulmonary tuberculosis, and we know that active pulmonary tuberculosis is present in at least one out of every one hundred mothers that they care for. Where are the cases? This is an excellent place for the obstetrician and general practitioner to play his part in the role of preventive medicine. Furthermore, it might explain many of the so-called postpartum fevers and the so-called acute pulmonary tuberculosis a few weeks or a few months after the child is born.

Another phase of this problem is the lack of facilities in institutions for pregnant tuberculous women. Our sanatoria do not provide for them as they should and our general hospitals do not want them. This thought impressed me so forcibly about three years ago in St. Louis that we established an obstetrical delivery room at our municipal sanatorium at Koch, Missouri. We have the services of trained obstetricians and gynecologists on our visiting staff. We need more facilities for the care of such women. They should not be treated in obstetrical clinics and be permitted up and about and not receive adequate treatment for their tuberculosis. The sanatorium is the best place for the majority of cases and the sanatorium must provide for obstetrical cases. At Koch Hospital, the infants are immediately removed from the sanatoria to several institutions where they receive the attention of trained pediatricians. Tuberculosis is as frequent in obstetrical clinics as it is in other clinics and it will be found when it is looked for.

I feel that Dr. Schwarz has stimulated an interest in the question of tuberculous pregnant women at Washington University Dispensary that will have a very far-reaching effect. We will be able to know more clearly as time goes on just what can be done for tuberculous pregnant women.

DR. SELIG SIMON: The interruption of pregnancy in women suffering from pulmonary tuberculosis seems to me in the large majority of cases unjustified. Very often we find such women improve, so far as their lungs are concerned, under sanatorium treatment so that they are in better physical condition at the time of delivery. The important factor is the care after delivery or during the puerperium when the pulmonary condition most frequently flares up. Again we have the desire on the part of the woman to become a mother and if her tuberculosis is so far advanced as to be hopeless she can at least feel that her child, properly protected, may have a better lease on life than she had. In those cases, and they are extremely rare, where recovery from the pulmonary process has progressed favorably and the patient continues to remain reasonably well under ideal conditions of living, it may be advisable to consider interrupting pregnancy.

SKIN DISEASES AND THEIR IMPORTANCE TO THE GENERAL PRACTITIONER

Considered from the Viewpoint of the Dermatologist*

RAY C. LOUNSBERRY, M.D.

SPRINGFIELD, MO.

There is no branch of medicine which has been more neglected than the one having as its prime object the successful treatment of skin diseases. For many years dermatology as a separate division of general medicine was unknown; in fact, this subject was not even placed in the curricula of the early medical schools and when it did become a subject in our medical schools it was given a very minor part in the schedule. This fact was especially true in America, although since the origination of the American Dermatological Association it has become more prominent due to the very noble efforts of that body. However, the subject of skin diseases as a specialty can be still more firmly established in the eyes of the general practitioner and in the minds of the people.

For many years the dermatologist took a prominent place in shaping the destinies of medical practice in the old world; in fact, practically all of the early men of note came from across the Atlantic. It has only been within the past few years that Sutton and others began writing on this specialty in America.

The early history of skin diseases abounds in good works performed by the staff of the London Skin and Cancer Hospital. These

men wrote extensively on the subject, and it is to their research and study that we owe much of our present knowledge in the practice of this important specialty.

When we realize that practically all diseases have symptoms which manifest themselves, if not primarily at least secondarily upon the skin, we can see the importance of dermatology.

There is no class of diseases more confusing than the one associated with the skin. The diagnosis is not only hard to make but when a definite diagnosis is made the treatment many times is almost empirical, due to the idiosyncrasies of the patient manifested in anaphylactic reactions. In the treatment of these diseases all patients even with similar diagnosis cannot be treated alike. For example, sulphur in the treatment of scabies is considered to be almost a specific, but sulphur dermatitis due to sulphur anaphylaxis will cause us to discontinue treatment and go to some other remedy.

Anaphylactic reactions due to foreign proteins are very numerous. Years ago a foreign protein was unknown and the term anaphylaxis was not used. Now, as Dwight Chipman, of San Francisco, Chairman of the Section on Dermatology, said during the last session of the American Medical Association: "In our search for etiologic factors we now have a list of possibilities, most of which belong to the present generation. I believe that it is fair to propound the following as worthy of complete investigation in every dermatosis of unknown origin—focal infection, the sympathetic nervous system, the internal secretory system, protein sensitization and disturbed metabolism."

I agree with Dr. Chipman that we can often unravel a difficult diagnosis by working along these lines. Of course, we must follow routine methods in the diagnosis of known diseases. We should be just as painstaking as we are in following a case of typhoid. A complete physical examination should be made of every case following a careful history. The laboratory examination should be thoroughly done. The blood should always be examined for a possible luetic or hidden tuberculosis infection, especially if the disease is of a serious, chronic or unknown character; for example, Wassermann tests should be made on all chronic dermatoses.

There are several methods of treatment which I have used recently with good results. I have treated psoriasis intravenously with a 20 per cent. solution of sodium salicylate as prescribed by Dr. Sachs, of Vienna, in conjunction with internal and external medication. I use carbon dioxide snow, high frequency which includes electrocoagulation and diathermy, natural sunlight, as well as actinic ray

*Read before the Southwest Missouri Medical Society, November 18, 1922.

therapy in the treatment of many dermatoses. In prescribing ointments, I usually write a prescription for one-half ounce quantities, my object being to eliminate a needless waste of ointment when the ointment after a fair trial proves worthless or exaggerates symptoms. Nothing is more disagreeable to a patient than to have jars half filled with ointments around, due to over-prescribing. I use ointments in acne and other similar conditions made from autogenous and heterogenous vaccines ground into a base of petrolatum and cocoa butter.

I am a great believer in the subcutaneous injection of autogenous colon bacilli vaccine in acute dermatosis. I always give a series of calisthenics and breathing exercises to raise body resistance of patients in need of such natural stimulation. Though glandular extracts may not be specific in the treatment of skin diseases, they are, however, useful adjuncts in dermal therapy. Thyroid extract in psoriasis, ichthyosis and dermatitis exfoliata or in cases which have symptoms of a hypothyroidism has proven beneficial in my practice.

Sometimes I feel that the reason we so often fall down in our diagnoses is that we do not follow the system taught in our modern medical schools today. We take the short cut, prescribe an ointment, call the condition eczema, and dismiss the patient when we should examine the lesion with a magnifying glass, under natural light, study the objective and subjective signs very closely as well as elicit a history.

We should review our anatomy and remember that there is one layer of the skin which is the seat of nine-tenths of all chronic skin troubles—the corium. It is important because of its rich supply of blood and nerves, because it is in this layer that we have the hair follicles, the sweat and oil glands as well as the superficial lymphatics. The respiration of the skin is controlled by the delicate machinery hidden in this layer. The secretory function is controlled at this centre as well as the heat regulation. From a study of the anatomy and physiology of the skin we are better prepared to understand the course of the disease. The guiding principles used in the scientific study of any disease should be applied here.

The treatment proper should be divided into two sections, constitutional and local. The former consists of the administration of general tonics, sedatives, purgatives, intestinal antiseptics, diuretics, animal extracts, anti-toxins, vaccines and serums. The local treatment is that which is applied externally, such as hot baths, hot compresses, hot plasters, soaps, ointments, dusting powders, lotions, oils, pastes, electrophototherapy, X-ray emanations and radium. In a few words I have covered roughly this important subject which is coming to the fore daily. Let us hope that the

time will come when the general practitioner will appreciate the fact that skin diseases, including the diagnosis and treatment of lues, comes within the realm of the dermatologist.

Report of interesting case of spontaneous gangrene of the skin.

Gangrene of the skin is a term employed to define a subject very interesting from the standpoint of the dermatologist. There are different forms of gangrene, the spontaneous form being one of the most interesting types. It follows in the wake of an injury, though at times it may develop magically or spontaneously, as the term implies. Some writers maintain that it is due to germs, since organisms have been found in the lesion. It is a question, however, whether the organism is due to the primary infection or to a secondary invasion. It usually manifests itself in women, is found in the second decade of life, and is hard to differentiate from dermatitis factitia.

The women as a rule give a history of a characteristic stigmata hysteria. Most cases start with an initial injury, such as a bruise, a scratch, or a burn, and are characterized by irregular sunken gangrenous areas which turn dark and finally slough away. A foul, ill smelling, putrefying odor surrounds the patient.

The treatment of this disease must point towards clearing up the symptom by means of internal and external administration. If the patient is neurotic bromides and hypnotics should be employed. If the condition is due to functional disorder, treat it symptomatically.

Miss H., age 16; weight 130 lbs.; height 5 feet, 5 inches; student. Nutrition good. The case was referred to me by a colleague. The early history of the patient was that of a nervous, temperamental child. At the age of three, her mother had died, leaving her under the care of a woman who reared her in an abnormal environment. She gives the history of numerous accidents.

Upon complete laboratory examination no findings were reported. Upon physical examination I found the head and neck negative, the abdomen negative, pelvis negative, extremities negative with exception of the gangrenous areas extending from her left wrist to her shoulder with areas extending down on her left breast.

Her present illness began about three months ago following an accident which occurred to her in the chemical laboratory. She had been working an experiment which required the use of sulphuric acid, and accidentally dropped the bottle which broke, a part of its contents falling on her wrist, though not a very great area was burned. Spontaneously the action started and in a very short time great sunken areas appeared above the point of the original injury until finally the whole arm was one mass of sunken superficial gangrene.

The symptoms were those of itching, smarting, burning, associated with a dull pain over the area. She had no systemic disturbances and her temperature, pulse, respiration and glandular system were normal. The diagnosis was made upon the history, physical examination, progress, symptoms and course of the disease. The prognosis was good in this case and the patient had an uneventful recovery.

The treatment of this case was similar to that discussed in my introduction. Alkalies

were used locally to counteract the acid and salts were given internally.

Alternating with the internal treatment, external applications of scarlet red, ichthyol and xeroform ointments were applied. Later Dr. Sutton's aluminum acetate pack combined with radiant light were applied.

Healing took place by second intention, leaving irregular raised keloid-like scars. I am using the water cooled Finson ultra violet rays for the removal of the scars.

710 Woodruff Bldg.

TYPHOID IN LARGE CITIES OF THE UNITED STATES IN 1920.—There are now sixty-eight cities with a population of more than 100,000. More than one-fourth of the population of the United States lives in these cities, and nearly one-sixth lives in the cities of more than 500,000 population. Every one of the twelve largest cities (more than 500,000 population) had a typhoid death rate under ten in 1920. Ten of the twelve cities had a rate under five. Seven of the nine cities with a population of from 300,000 to 500,000 show improvement over the 1919 rate. The twelve cities with a population of from 200,000 to 300,000 also show a lower death rate. In reviewing the whole record for 1920, it appears that typhoid is still decreasing in the large cities of this country at a rapid rate. Last year the striking drop in typhoid occurring between 1918 and 1919 was ascribed in large part to the typhoid immunization practiced in the army camps in 1917-1918. Additional facts are now at hand to bear out this belief. In a number of localities it has been found that whereas before 1919 the male typhoid rate in the age-group 20-30 was somewhat higher than the female, this relation was reversed in 1919 and the female typhoid rate was much higher than—in some cases more than double—that of the male rate for the corresponding years. It is especially interesting to note that the vaccination immunity persisted to a considerable degree in 1920 and, so far as specific data are at hand, showed no signs of wearing off. The general typhoid death rate seems to corroborate this inference, since the 1920 rate fell below that of 1919 in about the same ratio as that of 1918 fell below that of 1917. At all events, the 1920 rate gives no indication that the men inoculated against typhoid in 1917 and 1918 had in any large proportion lost their immunity in 1920. A comparison of the Honor Roll (typhoid death-rate from 0.0 to 2.0) for 1920 with that for 1919 shows that the number of cities with the lowest rate has increased from eight to ten. Three cities, Chicago, Scranton, Pa., and Tacoma, Wash., are on the Honor Roll in both years. Cambridge, Mass., has the distinction of making the best record of any American city for the whole fifteen-year period.

MULTIPLE MALIGNANT NEOPLASMS.—Cases are recorded by Leonard J. Owen, St. Louis (*Journal A. M. A.*, May 14, 1921), in which there were observed multiple malignant growths either of the same type or of different types. In the majority of cases the neoplasms were simultaneously present, though in some cases there was a sequence of development, the first growths having been treated successfully. Care was taken in the latter cases to rule out those in which there was the possibility that the second growth was a recurrence, or what might be more accurately termed a neoplastic recidive. The record-

ing of metastatic growths was also guarded against. Several cases that had been recorded as multiple melanomas were excluded on this basis. Among 3,000 cases of malignancy reviewed, 143, or 4.7 per cent, were cases of multiple growths. There were eighty-six basal cell carcinomas; twenty basal cell and prickle cell cancers, seven multiple malignant squamous cell carcinomas of mucous membrane origin; fourteen cases of bilateral cancer of the breast; five cases of coincidence of breast and other types of cancer; four cases of multiple cystic carcinomas and four melanomas. There was one case in which multiple cancers of the stomach were found. There were two cases in which more than two types of malignant neoplasm were present. In one of these cases there were seven neoplasms, including a basal cell carcinoma of the forehead, a sarcoma of the antrum, and bilateral adenocarcinomas of the breasts. In the second case, both breasts had contained nodules for twenty-five years; the left lower alveolar border was the site of a malignant squamous cell carcinoma, from which there were metastases to the submaxillary region. There was also a large carcinoma of the cervix.

DIFFICULTIES IN DIAGNOSIS OF EMPYEMA COMPLICATING PNEUMONIA.—Roger S. Morris, Cincinnati (*Journal A. M. A.*, May 14, 1921), has observed a number of cases in which, following an attack of pneumonia, dullness over the affected lobe became more intense, even flat, with distant or absent breath sounds, not infrequently egophony, and diminished or absent vocal fremitus; often with dullness over the dorsal spines and a paravertebral triangle of dullness on the unaffected side. Given such physical signs, exploratory puncture is always indicated. If a syringeful of pus is obtained, the diagnosis is practically certain, and drainage is indicated. It sometimes happens, however, that only a drop or two of pus is obtained, and then the interpretation of the finding is more difficult. The accompanying case histories are illustrative. There have been many instances in which, with a delayed resolution, all the signs of fluid in the pleural cavity have been observed. At times, the signs persist for two or three days, only to disappear for a short time or permanently. Not infrequently, the signs of fluid are present one day, absent the next, and reappear the third day. In such cases, exploratory puncture usually fails to reveal pus. Morris has come to the conclusion, as a result of numerous necropsy findings, that all of the evidences of fluid in the pleural cavity may result when, in addition to infiltration of the lung, the bronchi are filled with secretion. This, in effect, is a massive pneumonia, a condition which has long been known to simulate fluid in the pleural cavity.

WASKIA INTESTINALIS.—From the stool of a patient who had a history of many years of diarrhea, and who was known to have a trichomonas infection, Mary Jane Hogue, Baltimore (*Journal A. M. A.*, July 9, 1921), cultivated *Waskia intestinalis*, and its cysts appeared in large numbers. The woman had never been out of the United States and had spent most of her time in Pennsylvania and Maryland. No other protozoa were growing with *Waskia*, though there were numerous bacteria present from the intestine. This culture has been kept under continuous observation for more than eight weeks. Transplants into new culture tubes are made every other day. After two months the flagellates are still in a normal, active condition.

**THE JOURNAL
OF THE
Missouri State Medical Association**

JULY, 1923.

EDITORIALS

G. WILSE ROBINSON, M.D.

OUR NEW PRESIDENT

The election of G. Wilse Robinson, of Kansas City, to the presidency of the Missouri State Medical Association at the Annual Meeting at Joplin, May 8, 9, 10, has proved a popular move throughout the organization. Dr. Robinson was unanimously chosen and received an ovation by the House of Delegates.

The new president was born August 1, 1871, on a farm in St. Clair County and received his early education in the public schools of that county and in the Appleton City Academy. A portion of his medical training was gained in the Medical Department of the State University and in 1896 he was awarded his medical degree by the Beaumont Hospital Medical College of St. Louis.

Shortly after his graduation he took up the practice of medicine in Bates County, later moving to Joplin where he practiced for four years. From Joplin he went to Kansas City, where he engaged in general practice. He was Professor of Physiology at University Medical College of Kansas City, Missouri, until May, 1907, at which time he was appointed superintendent of State Hospital No. 3, at Nevada, Missouri. From this position, he went back to Kansas City to serve as superintendent of the General Hospital there. June 1, 1910, he was appointed superintendent of Punton Sanitarium, which position he now holds.

During the recent World War, Dr. Robinson held a commission as Major and saw active service overseas as neuro-psychiatrist with Base 28, at Limoges, France.

Dr. Robinson is a member of the staff of several Kansas City hospitals and is an active member in many organizations, civic and social as well as medical. In 1917, he was president of Jackson County Medical Society and was president of the Kansas City Academy of Medicine in 1920. He is a member of the American Medico-Psychological Association.

As a neurologist and psychiatrist he has made an impression on the workers in that profession throughout the country.

The Association is to be congratulated upon its choice of its executive because of the un-

tiring energy with which Dr. Robinson is possessed. His wide acquaintance over the state among the laity as well as among the profession is a valuable asset and makes him peculiarly suited to hold this office.

USE OF INSULIN TO BE TAUGHT

Instruction in the use of Insulin for diabetes will be given at Barnes Hospital and the St. Louis Children's Hospital, beginning July 1.

All practitioners of medicine are welcome to take the instruction. This will consist of daily conferences on the subject of diabetes and its proper treatment and also such instruction in laboratory methods as is necessary for the proper use of Insulin.

Daily conferences will be held at 10:00 a. m.; laboratory instruction will be given in the afternoons.

It is suggested that the physicians come to Barnes Hospital first and then after sufficient time continue their work in the St. Louis Children's Hospital.

This instruction is made possible through the gift of \$10,000.00 by John D. Rockefeller, Jr., to each of a list of hospitals throughout this country and Canada. The selection of the individual hospitals was made by a committee headed by Dr. Simon Flexner of the Rockefeller Institute for Medical Research.

The purpose of the gift is to increase the number of free ward patients who can be treated with insulin and to teach physicians in general practice the proper methods of employing the treatment.

ST. LOUIS EXPANDS PUBLIC HOSPITAL WORK

St. Louis took a decided step forward when she voted the eighty-eight million dollar bond issue last spring. There were and are many things about which St. Louis may boast and be proud. There are also some things about which St. Louis may not boast. One is the River Des Peres, another is the condition of some of her streets and still another is the over-crowded and under-manned condition of her eleemosynary institutions.

But the remedy for these things has come to St. Louis. The bond issue has made these much needed improvements and changes possible.

In the annual report of Director of Public Welfare Nelson Cunliff, for 1922-1923, the urgent need for the various improvements to the various public institutions for the care of the sick is earnestly set forth. Mr. Cunliff states very clearly the advantages to be gained



G. WILSE ROBINSON, M.D.
KANSAS CITY
President Missouri State Medical Association,
1923-1924

from the expansion of the scope of the work and the enlargement of equipment.

Already, at Koch Hospital, the death rate from tuberculous patients has been reduced fifty per cent. This is due to the installation of new, modern equipment and to the introduction of the latest scientific methods.

It is the plan to make the mentally deficient and the insane useful members of society instead of burdens to the community. This can be accomplished only through the maintenance of the present Sanitarium as a "well equipped mental disease hospital" instead of "a high-class boarding house." Many patients sent here may be improved or even cured if proper measures be employed and may be able to take again their proper place in the community.

Other hospital improvements recommended by Mr. Cunliff making toward a better community from a health standpoint are based on common sense views and are to be acted on and carried out as fast as the funds are available.

One thing which we are all interested in and one which is vital to the community as a whole is the health and normal growth of our children. Mr. Cunliff regrets that due to lack of funds the playgrounds of the city have to be run only on a summer schedule. That is, they are supervised during the vacation months only. The records show that juvenile delinquency in the neighborhood of a supervised playground is practically non-existent while in the neighborhood where there is no playground or one with no supervision, the delinquency is high. If these matters are attended to while these are yet children, there will be fewer mentally diseased and criminally inclined when they reach the adult age. Delinquency in childhood and mental deficiency in adult life have a direct relationship to each other. Proper supervision with regard to health is largely the answer to both.

Mr. Cunliff has clear sightedly analyzed the situation and has based the recommendations which he has made to meet the situation upon good common sense.

EDUCATE AND HABILITATE THE CRIPPLED CHILD

The crippled child campaigns of the St. Louis Medical Society vitalized by the public sentiment aroused through the publicity given in the *St. Louis Post-Dispatch* are drawing the St. Louis board of education to a decision in favor of educating and habilitating these unfortunate examples of human imperfections. The board of education has decided that something shall be done but just what or to what extent facilities shall be erected for doing it seems to be a matter of disagreement.

Such disharmony upon so important a topic is unfortunate in view of the benefits derivable from the plan now operating in Chicago. In that city the various stages of experimentation proposed by some members of the St. Louis board of education have been tried, found inadequate and discarded, and the present plan finally adopted. This plan has for its central idea the use of a special building adjacent to the Chicago Hospital for Crippled Children so that the mental development of the children may be stimulated and the physical handicap receive the necessary hospital and medical care without interrupting the educational process. Chicago educators declare that it is a waste of money and no progress can be made in this great work unless the crippled children are housed where hospital and medical treatment are available.

There is a wonderful opportunity in St. Louis to begin this work under most advantageous circumstances, namely the erection of a school building near the orthopedic clinic of the Washington University Medical School and the Barnes Hospital and the Shriners' Hospital for Crippled Children.

Perhaps the board of education may find itself compelled to begin in a small way on account of insufficient funds, but that fact should not excuse a false start. Not every crippled child in the community can be cared for in the beginning, but those that are accepted should be given the advantage of the best method present circumstances justify.

In reality, it is the problem of the state department of education to fit these children mentally for something useful upon maturity. And it is the problem of the state health department to care for them so that they may be as physically fit as possible to maintain the position in the community for which they have been educated. This last is an excellent argument for the building of a state general hospital.

The co-operation of the entire reputable medical profession is assured. In fact, it is one of the aims of the profession to "make itself more useful to the public in preventing and curing disease and in prolonging and adding comfort to life."

BEDS AVAILABLE AT STATE SANATORIUM FOR TUBERCULOSIS

With the completion of a new building at the state sanatorium at Mount Vernon and the enlargement of some of the other buildings, there is opportunity for about one hundred persons to be received for treatment. During the summer months a number of patients usually leave the institution to spend the warm days at their homes thus making room for

other patients. At this time, therefore, the sanatorium is ready to accommodate the number of patients mentioned above. It must not be forgotten, however, that only incipient cases can be received.

The state sanatorium has won an enviable reputation since its establishment, there being a splendid record of cases cured and arrested. It should be the pleasure of every member of our Association to encourage the officers of that institution in the continuation of this good work. Any physician who has incipient cases of tuberculosis that desire to go to the sanatorium should have the patient apply to the County Court for the necessary blanks and information regarding the name and location of the medical examiner nearest his home.

MISSOURI HOSPITAL ASSOCIATION

On May 14, 1923, the second meeting of the Missouri Hospital Association was held in Kansas City. The meeting for organizing the association was held in St. Louis the previous year.

The objects of the association are set forth in the following quotation from the constitution: "The object of this Association shall be to promote the welfare of the people of the State of Missouri, insofar as this may be done by aiding the development of the hospitals and dispensaries of the state in number and location, in the erection of buildings, in securing the best equipment, and in promoting general efficiency of operation, and also to advance the interests of all medical service institutions in every way possible."

Eligibility for membership is determined by the following provisions of the constitution: "Active members shall be those who at the time of their election are trustees or superintendents, or assistant superintendents of hospitals or members of the medical staffs of hospitals, however such officials may be designated, and the executive officers of any state or nationwide organization having as its purpose the development of hospitals or hospital service." "Associate members shall be department heads of hospitals next in authority below the superintendents, contributors to or officers or members of an association the object of which is the development of hospitals or the promotion of interests of organized medical charities."

The meetings up to the present have had as their functions the two chief objectives of getting together and of getting acquainted.

The aims of the association are so broad, for it is the desire of the association to help in all health problems, and so many are eligible for membership that it is hoped that the membership will soon be greatly increased and that the association may be called on by the other bodies in the state to assist in every way that

it can to help in promoting the general welfare of the commonwealth.

BOOKS FOR LEISURE MOMENTS

*Reading with discrimination broadens the mind
and strengthens the mental grasp*

ALL devotees of Irvin S. Cobb and those who have a bit of curiosity as to the workings of a newspaper office, will welcome "Stickfuls" (Geo. H. Doran Co., New York), Cobb's new book of his career as a reporter and his growth from a cub to the "best reporter in the United States."

The title will mean little to the ordinary reader, but to the initiated it is cycloramic. It is a term used little today but one much used in the early days of Cobb's career. It is the name for a certain number of lines of type which was set by hand in those days. Now, with the advent of the linotype machine, it has become superfluous. A reporter in the old days would write a stickful, two stickfuls or half a stick,—and usually about half of that actually saw print.

But to get on with the story—it is written in the inimitable Cobb style pungent with humor as only Cobb can write it. When one reads about his first big story written for the Chicago Tribune and the personal letter of commendation received from Joseph Medill, the editor-in-chief of that paper, a lump rises in one's throat and a tear or two are very near the surface and then, when one reads of the audacious manner in which he secured his first job on a New York paper that lump recedes and a deep chuckle displaces it.

Just as the lay mind has wondered how you perform operations which seem easy and simple to you who know the mystery of it and know that there is no mystery at all, so have you wondered how a paper can evolve a readable story containing only the most important, most interesting facts about a murder trial, a divorce suit, or a civil suit. To the reporter it is simple. Cobb devotes one whole chapter to this subject, "Big Moments in Big Trials."

His concluding chapter proves that newspaper reporters are very real, very human persons (contrary to the current belief) and that they can be thrilled in much the same manner as can any other human being.

Each chapter in itself is worth the price of the book, but to have eight such chapters all bound in one cover is surely a treat not to be overlooked. And to have those chapters written by the man who has been awarded the O. Henry Memorial prize for the best short piece of fiction ("Snake Doctor") and who has been recently voted by a group of ten

literary men—editors, critics, readers and writers—first as a writer of humor, first as an all-round reporter, first as a local colorist, first in the relating of tales of horror, second as the writer of Negro stories (there was no



Cobb writes a stickful.

one who was first!), first as a teller of anecdotes, and second only to Booth Tarkington as a writer of light, humorous fiction, makes it a doubly worth while book with which to spend an hour or two of leisure.

OF particular and peculiar interest to the physician is the new book by Philip Curtiss, "Mummers in Mufti" (The Century Co., New York). Dr. MacVicker is presented in a very real manner and really lives throughout the story although he is actually in the story only at the beginning and in the concluding chapter. But he is the link between the old and the new Bellsmith who is the hero of the tale.

In this story the physician may see himself as others see him and in a very favorable light. It depicts a phase of practice which is just a little aside from the regular routine and yet work which must be done.

The character development is good, it is consistent and shows an even growth all through the book. The action is rapid and at times exhilarating. It moves swiftly to the denouement and has a very human ending.

NEWS NOTES

DR. WILLIAM H. BREUER, of St. James, was elected president of the Frisco Railroad Medical Association at the meeting held in Kansas City, May 29-30.

DR. T. T. O'DELL, of Marionville, took a three weeks' course in X-ray work under the

direction of Dr. Sante at the St. Louis City Hospital in May and June.

DR. JAMES R. MCVAY, of Kansas City, has been appointed a member of the state board of health by Governor Hyde to succeed Dr. Franklin E. Murphy, who resigned.

DR. AUSTIN McMICHAEL, of Rockport, suffered a fractured clavicle and severe contusions when he was knocked down by an automobile while visiting in Kansas City.

MRS. VIOLA OSWALD, a chiropractor of Cape Girardeau, was arrested on a charge of practicing medicine without a license and was fined \$500 in the circuit court at Jackson, June 15.

DR. W. T. COUGHLIN, of St. Louis, was the guest of the Tulsa County Medical Society, Tulsa, Oklahoma, June 11, and addressed them on the subject, "A Safe and Certain Cure for Trigeminal Neuralgia."

DR. W. T. COUGHLIN, of St. Louis, was the guest of the Toledo Academy of Medicine at Toledo, Ohio, May 4, 1923. He read an address before them on "The Modern Treatment of Trigeminal Neuralgia."

THE annual assembly of the Tri-State District Medical Association, of Iowa, Illinois, Wisconsin and Minnesota and districts of surrounding states, will be held at Des Moines, Iowa, on October 29-November 1, 1923.

B. O. HUNTLEY, a chiropractor living in St. Louis, was convicted on a charge of practicing medicine without a license. Huntley was fined \$50.00. The prosecution was made by the health department. Huntley will appeal the case, it is said.

THE Second Annual Stag Party of the faculty and senior class of Washington University School of Medicine, St. Louis, was held at Francis Field, May 26. These parties were instituted as a means of creating a stronger alumni spirit.

THE state board of health examined 142 applicants for license to practice medicine at the meeting held in St. Louis, June 6-9. This is the last examination which will be held under the law passed in 1921 removing the word "reputable" from the statute. The new law passed in 1923 restoring the word "reputable" became effective June 18.

THE Medical Department of Washington University School of Medicine, St. Louis, honored Dr. Ralph A. Kinsella, with a tribute to his success during the past year, by a dinner at the University Club, May 28th, Professor Kinsella has consented to direct the department for another year. Dr. Sidney I. Schwab was toastmaster.

DR. NATHANIEL ALLISON, Dean of Washington University School of Medicine, St. Louis, in recognition of his scientific accomplishments, has recently been elected to membership in the Alpha Omega Alpha Honorary Medical Society. Installation took place at the Westgate Hotel. He addressed the Society on the subjects of medical ethics and the training of the strong teachers of medicine.

DR. L. C. McAMIS, formerly of St. Louis and now of Denver, Colo., has announced that he will open an office in the Imperial Building of that city, after a protracted illness. His practice will be limited to general surgery.

For many years, Dr. McAmis was associated with Dr. H. C. Mudd in St. Louis, and his large circle of friends will welcome the fact that he has recovered sufficiently to resume his practice.

IT is reported by the state board of health, that Emery Lambert Langley, of Essex, Stoddard County, afflicted with leprosy is at large in the state, having escaped from the Government Clinic at Hot Springs, Ark., where he had been sent for treatment for a social disease and where it was discovered that he was suffering from leprosy. He is not afflicted with that type of leprosy which can easily be discovered from appearance but one which manifests itself in the nose and one which is only found upon close examination.

H. H. HILBERT and A. J. Meyer, chiropractors in St. Louis, were prosecuted by the St. Louis Health Department for practicing medicine without a license. It was charged that Meyer advertised in such a manner as to indicate he had the right to treat the sick. The advertisement is said to have appeared in a telephone directory. Meyer's attorneys asserted that the advertisement was not inserted with Meyer's consent. Hilbert gave treatment to an investigator for the health department for which he received \$2. Both men were found guilty and fined \$50 and costs each.

DR. RALPH L. THOMPSON of St. Louis, has tendered his resignation as Professor of Pathology in St. Louis University, at the same time

expressing his willingness to be of whatever service he might to the institution with which he has been prominently connected for twenty years. He will give his entire time to laboratory diagnosis. Dr. Thompson came to St. Louis University as associate professor in 1904. He was made professor and director in 1907 and has made for himself an enviable position as a teacher of pathology. During his incumbency he collected a very large museum which is illustrative of practically all pathological institutions. In recognition of this the University has decided to designate this museum as the Ralph L. Thompson Collection of Pathological Specimens.

THE annual meeting of the Missouri Hospital Association was held in Kansas City at Hotel Muehlebach on May 14. The program in the morning consisted of a business meeting and talk by the president, Dr. L. H. Burlingham, of St. Louis. Following lunch, at which the Kansas City members were hosts, there was an inspection of as many of the hospitals as time permitted. The evening program consisted of a Round Table discussion presided over by Dr. B. A. Wilkes, of St. Louis.

The officers elected for the coming year are: Dr. Rush E. Castelaw, president, Kansas City; Dr. B. A. Wilkes, first vice president, St. Louis; Pearl P. Flowers, second vice president, Fulton; Louise Ament, treasurer, St. Louis. Dr. L. H. Burlingham, St. Louis, was elected a member of the board of trustees to serve for three years. The board of trustees will be constituted for the coming year as follows: Dr. Rush E. Castelaw, chairman. Louise Ament, Isabelle Baumhoff, R. N., Dr. M. O. Biggs, Mary G. Burman, R. N., Dr. Guy L. Noyes, Dr. L. H. Burlingham.

As rapidly as funds are obtainable from the portion of the eighty-eight million dollar bond issue voted last spring in St. Louis set aside for improvements to public hospitals and institutions the recommendations of Dr. George M. Kline, of the Department of Mental Disease of the State of Massachusetts, will be carried out.

Dr. Kline is an authority on this subject and was brought here by Director of Public Welfare Nelson Cunliff to make a survey of the eleemosynary institutions and to make a special report of his findings.

His recommendations coordinate with those set forth in the report of the Director of Public Welfare for 1922-1923. Some of the important ones are:

Erection of new building for the care of tuberculous insane.

Installation of hydrotherapy in the main building.

Installation of hydriatic room and X-ray room.

There were several other recommendations made all of which will be accomplished as soon as possible.

It is planned to spend about \$400,000 in 1923 out of the funds available from the bond issue.

ST. LOUIS physicians will take a prominent part in the meeting of the American Medical Association at San Francisco, June 26 to 29. The following are for the most part professors and practitioners in the city. Those connected with the St. Louis University Medical School are: Drs. Cyrus E. Burford, Professor of Genito-Urinary Diseases, and Dr. M. A. Bliss, a practicing neuro-psychiatrist are chairmen of the sections of their respective specialties. Drs. John Green, Jr., Associate Professor of Ophthalmology, J. W. Machildon, Assistant Professor of Genito-Urinary Diseases and G. E. Hein, Assistant in Genito-Urinary Diseases, will deliver papers. Those connected with Washington University School of Medicine are: Drs. Harry S. Crossen, Clinical Professor of Gynecology and Borden S. Veeder, Professor of Clinical Pediatrics. They are chairmen of their respective sections. Dr. J. Archer O'Reilly, Associate in Clinical Orthopedic Surgery, is secretary to his section. Papers will be delivered by Drs. Evarts A. Graham, Professor of Surgery, Dr. Ernest Sachs, Professor of Clinical Neurological Surgery, O. H. Schwartz, Associate Professor of Obstetrics, O. S. Krebs, Instructor in Obstetrics. Drs. Greenfield Sluder, Clinical Professor of Laryngology and Rhinocology, Meyer Wiener, Associate Professor of Clinical Ophthalmology, M. F. Arbuckle, Instructor in Clinical Laryngology and Rhinology, I. D. Kelley, Instructor in Clinical Otology, M. T. Burrows, Associate Professor of Surgery, and V. P. Blair, Associate Professor of Clinical Surgery.

OBITUARY

JAMES A. G. TONGE, M. D.

Dr. James A. G. Tonge, of Wakenda, a graduate of Kansas City Medical College, 1899, died at his home, June 8, 1923, at the age of sixty-one, following a long illness. Dr. Tonge gained his early experience as a physician among the Indians on their reservation in Oklahoma. Most of his life, however, had been spent in Missouri, where he was born. He was vice president of Carroll County Medical Society in 1922, and served as dele-

gate to the State Meeting in 1920. He was a fellow of the American Medical Association.

WILLIAM C. ETHERTON, M. D.

Dr. William C. Etherton, of Missouri City, died at his home, May 25, 1923. He was a graduate of Jefferson Medical College of Philadelphia, 1890, and had attended the Kentucky School of Medicine, Louisville. He was a member of Clay County Medical Society and the State Association.

CORRESPONDENCE

FUND FOR PROFESSOR E. FRIEDBERGER

St. Louis, Mo., April 16, 1923.

3514 Lucas Avenue.

To the Editor.—I have received a letter from my friend and teacher, Professor E. Friedberger, Director of the Hygienic Institute of the University of Greifswald, whose work in science and as editor of the *Zeitschrift fuer Immunitaetsforschung* is well known to you, has written me a letter asking me to collect a fund for him to complete his work on experimental typhoid infection.

He has met with enormous difficulties in carrying on the work because of the financial conditions now prevalent in Germany.

I would esteem it a great favor if you would give such publicity of this request to the readers of the JOURNAL so that any that may be so inclined may send me their donations which will be duly acknowledged and forwarded to Professor Friedberger.

This is a matter, I think, of interest to the entire world without regard to nationality and I hope to receive enough money to help Professor Friedberger carry on his important work.

For those who are not acquainted with the literature of immunology I may state Friedberger's name is as well known as Wassermann's and others in this line. He is possibly the best known for work on anaphylaxis, but his contributions are so many that it would be useless for me to try to catalogue them.

R. B. H. GRADWOHL, M.D.

CENTENARY OF LOUIS PASTEUR

NEW YORK, N. Y., April 12, 1923.

281 Fifth Avenue.

To the Editor.—A prospectus of a journey in France organized especially for members of the medical and allied professions and their

families on the occasion of the Centenary Celebration of the birth of Louis Pasteur is attached hereto. [A copy will be sent to members on application.—Ed.]

In the belief that this journey may be of sufficient interest to your readers to warrant the publication of a few concise details, we take pleasure in submitting them to you hereunder.

The journey is officially sponsored by the French Government, and will be distinguished by official receptions and ceremonies at the Pasteur Institute, the School of Medicine, the municipality and other institutions in Paris and Strasbourg, at the International Hygiene Exhibition at Strasbourg, at Dôle, Pasteur's birthplace, and at the scene of his early studies, Arbois.

A special invitation is tendered in addition by the cities of Aix les Bains, Evian and Vichy, where the medicinal waters and thermal establishments will be of professional interest to the visitors, and where the city authorities and local practitioners will join hands in extending a most cordial welcome.

While in Paris, visits will be made to Versailles and to other historic places surrounding the capital, as well as to the most important monuments and institutions within the city. Belleau Woods, Chateau Thierry, Reims, Verdun, the Argonne and the American Cemetery at Romagne will serve as reminders of the part played by the American Army and its Medical Corps in the World War. Days of motoring through the scenic loveliness of the Vosges, the Jura and the Alps will add a touch of exhilarating relaxation, making the journey a well-rounded holiday.

The cost is established in French currency, namely 5820 francs and does not include the ocean transportation, choice of which is left to individual discretion, although, of course, the Executive Committee is ready to assist prospective participants in that respect as in all others relative to the journey.

For the convenience of intending participants, details of the plan have been made available at the offices of transatlantic steamship lines in the principal cities throughout the United States. Full particulars may be secured direct from the Executive Committee, Centenary of Louis Pasteur, 281 Fifth Avenue, New York, N. Y.

L. J. GARY,
General Agent, Railways of France.

THE LETHAL AGENT IN ACUTE INTESTINAL OBSTRUCTION.—R. W. Gerard, Vermillion, S. D. (*Journal A. M. A.*, November 4, 1922), makes a brief review of the experimental work done by various workers on the cause of death in acute intestinal obstruction.

MISCELLANY

OTTO CASTLE MEMORIAL PRIZE (JACKSON COUNTY MEDICAL SOCIETY)

Presentation Address 1923*

DR. SCOTT P. CHILD

Mr. President, past presidents, honored guest, friends and members of the Jackson County Medical Society:

In the history of organized medicine in Jackson County, Missouri, this is a significant occasion. Its significance is not in the number present at this, the first dinner of "presidents night," nor in the delightful social features of such a gathering, nor primarily at a growing position of respect now accorded to our organization in Kansas City. It is significant because out of the growing years and in the individual membership of this society, "a spirit and practice of true medical progress" are now represented and actively manifested.

The organized medical profession of Kansas City and Jackson County, Missouri, associated with the exigencies of the recent world war and the distressing political, social and industrial changes since, has, like other groups, been put to the test. But it is ably meeting the problems and aiding in their solution. Practical and scientific work, in experimentation and along lines of research, is being done in our hospitals and laboratories. Many an individual member of this society is studying into the causes of physiological, chemical and pathological changes in the human tissues, and unselfishly striving to contribute to the removal of physical limitations and thereby add in a degree to the sum of human welfare.

In recognition of such work and to stimulate further endeavor, and to encourage the writing and reporting of such research and the results, and in the same spirit as promoted the Noble Prize and the Scientific Award of Edwin W. Bok of Philadelphia, a local member of the medical profession, whose identity is withheld by request, two years ago offered a prize in memory of Dr. Otto Castle for the purpose of stimulating research and original investigation among the younger members of this society.

The Jackson County Medical Society is deeply indebted to the originator and donor of this prize, and at this time desires to publicly acknowledge its appreciation and hearty approval of the award and its high purpose. The donor is again offering this award and, with certain provisions, desires to make it permanent. The provisions are that in the competition at least six papers must be presented annually, such papers to be based upon original experimentation and investigation along medical or biological lines, by members of the Jackson County Medical Society who have been in practice ten years or less. All papers previously read before the society are to be submitted to the editorial staff of the Weekly Bulletin of the society for the selection of the best three. From these three the final decision of the best paper is referred to the secretary and editor of the Missouri State Medical Association. His decision is accepted and later all papers submitted to be published in the Journal of the Missouri State Medical Association.

It is with pleasure that it can be stated tonight that three papers were presented in competition this year, and that out of such number one is especially meritorious in the character, originality and painstaking efforts shown, and for which the prize, one hundred dollars, is now to be awarded. The work, presented in this paper, was carried on in the University of Kansas and in the hospitals and labora-

* Read before the Jackson County Medical Society, Presidents Night, April 14, 1923.

tories of the two Kansas Cities, no boundary lines in science or states being recognized. The studies and research represent the combined efforts of two men, technically and clinically interested alike, whose varying experiences and personal viewpoints, as pathologist and surgeon, add to the value of the paper, the work itself and the conclusions drawn. The title of the paper is "Upper Intestinal Tract Obstructions. Blood Chemical Studies and Indications for Treatment." The joint authors are Doctors R. L. Haden and T. G. Orr, of the medical faculty of the University of Kansas, members of the medical profession of Kansas City, Mo.

Doctors Haden and Orr, in presenting to you this award, the generous gift of a colleague and contemporary, and through the kindly offices of the Jackson County Medical Society, of which you have the honor of membership, it is urged that you take such award in the spirit of the young Greek contestant, whose laurel wreath was significant not of his winning but of his running. This prize of one hundred dollars is, and ever should be, a stimulus to persistent endeavor in medical investigation and search for truth. It represents the desire on the part of the donor to develop latent capacity among the younger members of the medical profession, living here at the gateway to the Southwest, a territory rapidly increasing in population, whose health and welfare will in the future depend largely upon the humanitarian and scientific offices of this very group of research workers.

Doctors Haden and Orr, the Jackson County Medical Society commends you for your untiring, unselfish and scientific labors. It congratulates you on the successful results and attainment. May your future work demonstrate your "line up" with the forces and factors which are fundamental in life.
—*Bull. Jackson County Med. Society.*

FIRST ANNUAL "PRESIDENTS NIGHT" (JACKSON COUNTY MEDICAL SOCIETY)

Saturday night, April 14, 1923, at dinner, the Jackson County Medical Society inaugurated an annual event to be known as "Presidents Night," in honor of the past presidents of the society. Some 150 members sat down, in the grill room of the Baltimore Hotel, to a generous repast, listened to the musical and mystical voices and strings of a pure Dixie quartet of varied hue, and attentively followed with pride and pleasure the reminiscences on the early history and former presidents and members of the society.

A very remarkable fact stands out that the 41 past presidents of the society, since its origin in 1881, twenty-one are now living, and of such number seventeen were present and joined in the toasts and program of the evening. Three were out of the city and one unable to attend.

The speaker's table, at which sat the guest of the evening, Dr. Nathaniel Allison, Dean of Washington Medical School, St. Louis, and the officers of the society, was graced by the presence of the past presidents, many venerable, and a fine group of men who have given of their best years to the public, the profession and the society. It was fine to see them there, many of whom with advancing years seldom appear at the regular weekly sessions. The names of those whose earthly careers are ended, such as Calvin D. McDonald, the first president, Thomas B. Lester, Blencowe E. Fryer, John T. Mitchell, Thomas J. Eaton, Louis W. Luscher, Edward H. Thraikill, Homer C. Crowell, David R. Porter, Edward W. Schaufler, and others, bring to mind men who were eminent in their profession, socially minded and fine examples of American manhood, leaders in medicine and leaders of men. We respect

them and their memories and the society is the better for their membership and their influence.

The history of the first medical societies in this county was well told by our honor members, Drs. John Mott and J. D. Griffith. Dr. Mott is the only living charter member of the Kansas City Medical Society organized in 1869. Through the untiring efforts of a few of the physicians the first organization of the physicians of this county was completed in October, 1874. Drs. S. S. Todd and E. W. Schaufler rode throughout the county on horseback, inviting the doctors to attend. Dr. Todd was elected president and Dr. Schaufler secretary. After a few years the interest waned and again through the efforts and work of about twenty doctors the society was reorganized in 1881 and a charter obtained from the state. The invitation was extended to "all old members in good professional standing, and all doctors in good professional standing, having a diploma from a school recognized by the American Medical Association."

The second annual awarding of the "Otto Castle Scientific Prize" of \$100.00 took place at this time, reminding us of the truly scientific work being done by our members in research and experimental medicine. The recipients are to be commended for their honest and careful studies, and it is hoped next year a larger number may be stimulated to enter the competition.

Dr. Nathaniel Allison, Dean of Washington University Medical School in the old French-German city on the east, at the junction of the Father of Waters and our muddy Missouri, brought a hearty message from the older town to this young and vigorous municipality of the southwest and told us, from their experience, how to make good in civic responsibilities, in charity, in stimulating medical education and higher institutions of learning that our sons may, in their own state, have the opportunity to study and perfect themselves among their own people, where their ability and efforts are needed more and more as the years go on. The fraternal spirit manifested by Dr. Allison is reciprocated. His visit in the interest of professional co-operation of modern medicine and public welfare will surely be productive of good results. The society thanks him for his many good suggestions and it is believed that many can and will be initiated and carried out by our own county organization.

The first "presidents night" was a success, and future ones will be looked forward to with anticipation by the growing membership of the society. May our past-presidents live and bless us with their presence and smiles on into the century.

Our worthy president, Dr. Francisco, and his secretaries and well appointed committees, deserve great credit for the smoothness and completeness of this new venture in the interest of a greater fraternity among and better service by our organization—the Jackson County Medical Society.—*Bull. Jackson County Med. Society.*

IDAHO OSTEOPATHS MAY NOT PRACTICE SURGERY

The supreme court of Idaho, in the *State of Idaho v. Sawyer*, March 31, affirms a judgment holding the defendant, a licensed osteopath, guilty of practicing medicine and surgery, in that he made an incision into the abdomen of a human being and removed the appendix.

The New Standard Dictionary, said the court, defines osteopathy as follows:

A system of treating disease without drugs, propounded by Dr. A. T. Still, 1874. It is based on the belief that disease is caused by some part of the human mechanism being out of proper adjustment,

as in the case of misplaced bone, cartilage, or ligament, adhesions or contractions of muscle, etc., resulting in unnatural pressure on or obstruction to nerve, blood or lymph. Osteopathy . . . seeks to adjust correctly the misplaced parts by manipulation . . .

And Adjudged Words and Phrases defines osteopathy as:

A method of treating diseases of the human body without the use of drugs, by means of manipulations applied to various nerve centers—chiefly those along the spine—with a view to inducing free circulation of the blood and lymph, and an equal distribution of the nerve forces. Special attention is given to the readjustment of any bones, muscles and ligaments not in the normal position.

The court concludes, therefore, that osteopathy is a system of treating diseases of the human body without drugs and by means of manipulation, and that "manipulation" certainly does not cover and include the practice of surgery in any form. The supreme court sustained a ruling of the trial court refusing to receive evidence on behalf of the osteopathic defendant to show that the standard and accredited colleges of osteopathy include medicine and surgery as part of their curriculums, that the science or practice of osteopathy contemplates and comprehends the practice of medicine and surgery, and that the colleges of osteopathy use the same textbooks on the practice of medicine and surgery that are used in the best recognized medical schools, and devote as much time to the subject as is consumed in the best "allopathic" colleges. The purpose of the proposed testimony, said the supreme court, was to show that graduates of recognized and accredited colleges of osteopathy now possess the requisite knowledge and skill to engage in the practice of medicine and surgery, but the only question before the court was whether the defendant possessed the statutory qualifications, and the evidence was therefore irrelevant.—*Journ. Am. Med. Assn.*

was called to order by the President, Dr. A. R. McComas, in the Class Room, Scottish Rite Cathedral, Joplin, at 9:45 a. m., Tuesday, May 8, 1923. At roll call, fifty-nine delegates responded as follows:

DELEGATES

COUNTY	DELEGATES
Atchison	A. McMichael, Rockport
Audrain	J. E. Miller, Mexico
Boone	J. E. Thornton, Columbia
Buchanan	H. S. Conrad, St. Joseph
Buchanan	H. W. Carle, St. Joseph
Caldwell	Tinsley Brown, Hamilton
Carter-Shannon	T. W. Cotton, Van Buren
Cass	J. S. Triplett, Harrisonville
Cedar	A. B. Freeman, Eldorado Springs
Chariton	J. Franklin Welch, Salisbury
Christian	J. A. Robertson, Ozark
Cooper	C. H. Van Ravenswaay, Boonville
Dekalb	L. E. Saunders, Stewartsville
Dunklin	J. A. Hogue, Holcomb
Gentry	J. A. Crockett, Albany
Greene	M. C. Stone, Springfield
Greene	J. W. Love, Springfield
Grundy	J. B. Wright, Trenton
Howard	V. Q. Bonham, Fayette
Jackson	Chett McDonald, Kansas City.
Jackson	Jabez N. Jackson, Kansas City.
Jackson	Morris H. Clark, Kansas City.
Jackson	H. E. Pearse, Kansas City.
Jackson	E. H. Skinner, Kansas City.
Jackson	C. J. Hunt, Kansas City.
Jackson	J. L. McDermott, Kansas City.
Jackson	James R. McVay, Kansas City.
Jasper	R. M. James, Joplin
Jefferson	N. W. Jarvis, Festus
Laclede	J. W. Lindsay, Conway
Lafayette	A. J. Chalkley, Lexington
Livingston	J. W. Helton, Chillicothe
Marion	Thomas C. Chowning, Hannibal
Newton	J. L. Edmondson, Stella
Nodaway	H. S. Dowell, Maryville
Perry	T. F. Estel, Altenburg
Pettis	A. J. Campbell, Sedalia
Phelps	W. H. Breuer, St. James
Pike	R. L. Andrea, Louisiana
Platte	A. S. Herndon, Camden Point
Pulaski	L. Tice, Waynesville
Randolph	S. T. Ragan, Moberly
Ray	R. L. Hamilton, Richmond
St. Louis	C. P. Dyer, Webster Groves
Stoddard	Frank LaRue, Dexter
Taney	Guy Mitchell, Branson
Vernon	P. E. Williams, Nevada
St. Louis City	Fred W. Bailey, St. Louis
St. Louis City	Cyrus E. Burford, St. Louis
St. Louis City	F. M. Barnes, Jr., St. Louis
St. Louis City	Roland Hill, St. Louis
St. Louis City	Chas. E. Hyndman, St. Louis
St. Louis City	R. S. Vitt, St. Louis
St. Louis City	Emmett P. North, St. Louis
St. Louis City	A. R. Kieffer, St. Louis
St. Louis City	W. F. Hardy, St. Louis
St. Louis City	John C. Morfit, St. Louis
St. Louis City	W. C. Gayler, St. Louis
St. Louis City	E. J. Norris, St. Louis
St. Louis City	Marsh Pitzman, St. Louis
St. Louis City	J. E. Stewart, St. Louis
St. Louis City	W. C. G. Kirchner, St. Louis
St. Louis City	Jules M. Brady, St. Louis
St. Louis City	Edwin Schisler, St. Louis
St. Louis City	Wm. H. Vogt, St. Louis
St. Louis City	W. W. Graves, St. Louis
St. Louis City	Lee Dorsett, St. Louis

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL, FOR 1923

(UNDER THIS HEAD WE LIST THE SOCIETIES WHICH HAVE PAID THE STATE ASSESSMENT FOR ALL THEIR MEMBERS)

Chariton County Medical Society, December 31, 1922.

Webster County Medical Society, January 6, 1923.

Madison County Medical Society, January 15, 1923.

Cape Girardeau Medical Society, January 23, 1923.

Camden County Medical Society, February 1, 1923.

Clark County Medical Society, March 5, 1923.

Perry County Medical Society, March 27, 1923.

Vernon County Medical Society, April 7, 1923.

MISSOURI STATE MEDICAL ASSOCIATION

Sixty-Sixth Annual Meeting, held at Joplin,
May 8, 9, 10, 1923

MINUTES OF THE HOUSE OF DELEGATES

Class Room, Scottish Rite Cathedral

Tuesday, May 8, 1923—Morning Session

The House of Delegates of the Sixty-Sixth Annual Meeting of the Missouri State Medical Association

The Secretary read the minutes of the last annual meeting. Dr. A. H. Hamel, of St. Louis, moved that all reference to the purchase of the hotel at Excelsior Springs by an advertising specialist be eliminated from the minutes. Seconded and carried.

On motion the minutes as amended were approved.

The President read his message as follows:

President's Message

1. I recommend that the term of the councilors be reduced from five years to three years. The term of five years was originally adopted when the association was organized so as to keep men in office who were in sympathy with this movement. There were many members who were not. During the last few years it seems that the work of the councilors is not up to the former standard. This may be because some of the men elected had not the time or were not suited to the work. If they are elected for three years at the end of that time if they have performed their work satisfactorily they may be re-elected. If they themselves found the work onerous it would give them a shorter time to serve, while if elected for a longer period they might not feel like resigning.

2. I recommend that a memorial be sent to the President of the United States, the Director of the Veterans' Bureau and to our Senators and Representatives in Congress, protesting against the training of veterans as chiropractors.

3. I recommend the adoption of a resolution asking that the medical profession be given an opportunity to consider, and if it desires to be heard upon the proposed regulations under the National Prohibition Act and the Harrison Narcotic Act that a copy be sent to the President of the United States, Secretary of the Treasury, Commissioner of Internal Revenue and the Prohibition Commissioner.

4. I recommend that the president of this Association and the chairman of the Council be placed upon the mailing list of county societies issuing bulletins, the expense to be borne by this Association. This will keep those officers informed of the doings of the societies as questions are brought up in them that affect the whole organization.

On motion the message was referred to the Council.

Dr. R. M. James, of Joplin, reported for the Committee on Arrangements. On motion the report was adopted.

Dr. E. J. Goodwin, of St. Louis, read the report of the Secretary. (See page 254.)

Dr. A. H. Hamel, of St. Louis, moved that the report be adopted and that the attention of the Councilors be called to the inactive societies. Seconded and carried.

Dr. J. Franklin Welch, of Salisbury, read the report of the Treasurer. (See page 256.)

On motion the report was referred to the Council.

The report of the Committee on Scientific Work was read by the Chairman of the Committee, Dr. E. J. Goodwin, of St. Louis, as follows:

Report of Committee on Scientific Work

The program as printed represents the report of the Committee on Scientific Work. The Committee has accepted fewer papers for the scientific program than in previous years in order that the members might have more leisure for the entertainments prepared by the Committee on Arrangements. We have departed from the custom of past years by inaugurating a reception to the President, so that the members may become better acquainted with him during

the social hour. At this session the President will read his annual address.

G. Wilse Robinson,
R. D. Alexander,
E. J. Goodwin, Chairman.

Dr. W. H. Breuer, of St. James, moved that the report be adopted. Seconded and carried.

Dr. H. E. Pearse, of Kansas City, read the report of the Committee on Health and Public Instruction.

Dr. W. H. Breuer, of St. James, moved that the report be referred to the Council and that Dr. Pearse be given a unanimous vote of thanks for the excellent manner in which he had handled the affairs of the Association during the meetings of the Constitutional Convention and the General Assembly. Seconded and carried.

Dr. W. A. Clark, of Jefferson City, moved that a telegram be sent to Senator Brogan, of St. Louis, expressing our appreciation of his work in our behalf in the last session of the General Assembly. Seconded by Dr. Guy Mitchell, of Branson.

After a discussion, Dr. John C. Morfit, of St. Louis, moved as an amendment that a telegram be sent to Senator Brogan and to such other friends of the medical profession in the General Assembly as Drs. Pearse, Hamel, Clark, and the President might indicate. Dr. Clark accepted this amendment and the motion as amended was duly seconded and carried.

Dr. C. E. Hyndman, of St. Louis, read the report of the Committee on Defense, as follows:

Report of Defense Committee

During the past year thirteen new suits for alleged malpractice have been filed against members of our Association.

Thirty-two cases have been cleared from our file.

Of these there were four verdicts for the defendant, one verdict for the plaintiff. Ten cases were compromised, seven cases were dismissed, two cases were non-suited and in four cases the plaintiff failed to prosecute. Four threats still remain undeveloped. There are twenty-four cases still pending at the present time.

The Committee on Defense wishes here to express its thanks and appreciation to the many members who have so cheerfully co-operated with them in the handling of these cases.

C. E. Hyndman, M. D., Chairman.
R. E. Schlueter, M. D.
R. S. Vitt, M. D.

The Committee.

On motion the report was adopted.

Dr. Frank G. Nifong, of Columbia, read the report of the Committee on Medical Education. (See page 256.)

Dr. John C. Morfit, of St. Louis, said he felt that this committee deserved the thanks of the Association for its excellent work and he moved that the report be adopted. Seconded and carried.

Dr. Herman E. Pearse, of Kansas City, read the report of the Committee on Hospitals. (See page 258.)

On motion duly seconded the report was adopted.

There was no report from the Committee on Cancer and no report from the Committee on Vaccination.

Dr. Emmett P. North, of St. Louis, read the report of the Committee on Blindness.

Dr. T. A. Cotton, of Van Buren, moved that the report be adopted. Seconded and carried.

Dr. M. P. Overholser, of Harrisonville, offered amendment to the constitution as follows:

Amendment to the Constitution

Amend Article VIII, Section 2, of the constitution by striking out the word "five" in the sixth line and inserting the word "three" in lieu thereof, so that the section when amended shall read as follows:

Article VIII, Section 2. The president and vice presidents shall be elected for a term of one year. The secretary and the treasurer shall be elected by the Council at its annual meeting and each shall hold his office for one year. The councilors shall be elected for terms of three years each, being so divided that one-fourth of the number shall be elected each year. All these officers shall serve until their successors are elected and installed.

The President announced that this amendment would lie on the table for one year.

Dr. Jabez N. Jackson, of Kansas City, stated that he believed certain changes were needed in conducting the affairs of the Association, particularly in the matter of electing the president so that the vote would be more representative of the general membership and every member be given an opportunity to express his choice.

The question was discussed by Drs. Morfit and Schisler and Dr. Morfit moved that the Committee on Constitution and By-Laws be instructed to draft a new constitution and by-laws and that the committee invite, through THE JOURNAL and by correspondence, expressions from the County Societies and members of the County Societies on this question, and from the results thus obtained embody their ideas in a proposed constitution and by-laws to be submitted to the next annual meeting of the Association. The motion was seconded by Dr. Schisler.

After a discussion by Drs. Jackson, Welch, Hamel, Morfit, the president called for a rising vote. There were six ayes and very many noes.

Dr. Jabez N. Jackson, of Kansas City, moved that the Committee on Constitution and By-Laws be instructed to suggest plans for a new method of electing the president so that it would be possible for every member to have a voice in the election of the president. Seconded and carried.

The president announced the following committee on nominations.

Committee on Nominations

W. H. Breuer, Chairman, St. James.
 H. W. Carle, St. Joseph.
 James R. McVay, Kansas City.
 John C. Morfit, St. Louis.
 J. W. Love, Springfield.
 Porter E. Williams, Nevada.
 L. E. Saunders, Stewartsville.
 V. O. Bonham, Fayette.
 T. W. Cotton, Van Buren.
 R. M. James, Joplin.

The Secretary read the resignations of Dr. F. R. Anthony, of Maryville, Councilor of the First District who is moving from the state, Dr. O. C. Gebhart, of St. Joseph, Councilor of the Second District, and Dr. J. B. Wright, of Trenton, Councilor of the Fourth District.

On motion the resignations were accepted.

Dr. Jabez N. Jackson, of Kansas City, moved that the Secretary be instructed to write Dr. Anthony expressing the regrets of the Association that he is moving from the state and thanking him for his faithful service in the affairs of the organization. Seconded and carried.

On motion adjourned.

Afternoon Session

The House of Delegates was called to order by the President at 3:10 p. m.

Dr. A. H. Hamel, of St. Louis, read the report of the Council, as follows:

Report of the Council

At the meeting of July 28, 1922, a member appealed to the executive committee of Council to issue a warning against fee splitting in his district. He stated that the fee splitting custom among members in nearby cities caused general practitioners to send cases requiring the attention of specialists to the fee splitting members in the cities although it was freely admitted that the specialists in the home towns were competent operators and well equipped to do the work. The Council passed a resolution condemning the practice and ordered the secretary to send copies of it to the county societies and to publish it in THE JOURNAL.

At the meeting held December 19, 1922, a delegation from the Board of Curators of the University of Missouri submitted plans for the establishment of a state general hospital at Columbia and for the re-establishment of the four year course in medicine. The delegation requested the co-operation of the Association in furthering these objects. The executive committee suggested certain changes in the plan which were then referred back to the board of curators, the changes acceded to, and, at a subsequent meeting the committee pledged its support to the board in this undertaking. The council approved this action.

The referendum on the medical practice act passed by the 1920 legislature has been disposed of. The Supreme Court decision was that the number of signatures was insufficient. We lost. The total cost to the State Medical Association is approximately \$4,000.

In accordance with the plan a bill was introduced in the legislature providing for a state general hospital at Columbia and asking an appropriation of \$250,000 as the first unit in a building ultimately intended to cost \$1,000,000. The bill, unfortunately, did not pass.

The Committee on Health and Public Instruction submitted the draft of a bill to rewrite the Medical Practice Act, which, after considerable discussion, was approved. This bill was introduced in the Senate by Senator Cave as Senate Bill 138 and by Mr. Tucker, of Stoddard County and Mr. Maxey, of Bates County, in the House, as House Bill 287. Concerning the fate of this bill in the General Assembly you will be informed by the Committee on Health and Public Instruction.

The council approved the action of the executive committee authorizing the employment of a legislative agent to keep the officers and the Committee on Health and Public Instruction informed of the progress of bills in the legislature and promote the passage of bills that we approved.

The council believes the money spent in this undertaking was well placed and put us in a position to act promptly on bills needing attention without the necessity of sending large delegations of members at frequent intervals to the capital.

A member asked for a ruling on the question of advertising X-ray photographing and treatment in the lay press. The executive committee informed him that such advertising was contrary to the Principles of Medical Ethics.

A county society asked whether it would be proper for the members to be listed on a placard to be tacked in the elevators and hotel lobbies of the city. It was explained to the committee that the purpose of this listing was to enable laymen to distinguish between reputable physicians and the "other kind." The council did not approve the plan.

The Council approves the recommendation of the President to reduce the term of the Councilors from five years to three years.

The Council also approves the recommendation of

the President that the Association subscribe and pay for bulletins published by our component societies, one copy to be sent to the President of the Association and one copy to be sent to the Chairman of the Council.

The Council recommends that the report of the Committee on Health and Public Instruction be not published as suggested by the Chairman of the Committee.

On motion the report was adopted.

The secretary called attention to the practice of the Veterans' Bureau in sending veterans of the World War to chiropractic schools for training in chiropractic. He also called attention to the fact that the Prohibition Commissioner and the Commissioner of Internal Revenue issued regulations under the National Prohibition Act and the Harrison Narcotic Act without giving physicians and others interested in the observance of these acts an opportunity to examine the proposed regulation with the view of preventing hardships to physicians and patients. He suggested that action should be taken toward correcting these abuses.

Dr. Emmett P. North, of St. Louis, offered the following resolution and moved its adoption:

Resolution Protesting Against Training World War Veterans in Chiropractic

WHEREAS, The Veterans Bureau continues sending veterans of the World War to schools of Chiropractic despite the resolution protesting against such practice by the Veterans Bureau adopted by the American Medical Association at its St. Louis Meeting in 1922, and

WHEREAS, The theory of Chiropractic is unscientific, unsound and contrary to the anatomical construction of the human body, and

WHEREAS, Chiropractors are a menace to the people because of their lack of education and their lack of knowledge of the anatomy and pathology of the human body, therefore be it

Resolved, That the House of Delegates of the Missouri State Medical Association in annual session at Joplin, May 8, 9, 10, 1923, earnestly appeals to the President of the United States, the Director of the Veterans Bureau and to our Senators and Representatives in Congress, to give more consideration to the protest of the American Medical Association above mentioned and heed this our protest against continuing the practice of sending veterans to Chiropractic Schools for instruction in Chiropractic, and be it further

Resolved, That a copy of these resolutions be sent to the President of the United States, to the Director of the Veterans Bureau and to both Senators and each Representative in Congress from Missouri, and to the Executive Secretary of the Bureau of Legal Medicine and Legislation of the American Medical Association.

The motion was duly seconded and after discussion by several members it was adopted.

Dr. Emmett P. North, of St. Louis, introduced the following resolution and moved its adoption:

Resolution Against the Issuance of Regulations Affecting the Practice of Medicine

WHEREAS, The practice of the Prohibition Commissioner and the Commissioner of Internal Revenue to issue regulations under the National Prohibition Act and the Harrison Narcotic Act without consulting physicians or submitting a draft of such regulations to physicians, and

WHEREAS, It is not possible for bureau officials to know how such regulations might interfere with the proper use of such drugs in the practice of reputable medicine, and

WHEREAS, Such arbitrary method of controlling the prescribing of drugs by reputable physicians is unnecessary and not in harmony with our system of government, therefore be it

Resolved, That the House of Delegates of the Missouri State Medical Association earnestly petitions the President of the United States, the Secretary of the Treasury, the Commissioner of Internal Revenue and the Prohibition Commissioner to promulgate no new regulations under the National Prohibition Act or under the Harrison Narcotic Act, relating to the practice of medicine and the medical profession, except in case of emergency, until after the proposed regulation has been published, and until copies have been furnished to interested persons who have filed requests for such service, or until after such persons and others interested have been given an opportunity to submit their views; and be it further

Resolved, That a copy of these resolutions be sent to the President of the United States, to the Secretary of the Treas-

ury, to the Commissioner of Internal Revenue, to the Prohibition Commissioner and to the Executive Secretary of the Bureau of Legal Medicine and Legislation of the American Medical Association.

The motion was seconded and adopted.

Dr. Emmett P. North, of St. Louis, moved that a committee of three be appointed by the President to press the matter of our protest against the practice of sending veterans of the World War to Chiropractic schools, and of our protest against issuing arbitrary regulations under the National Prohibition Act and the Harrison Narcotic Act.

Seconded and carried.

The next order of business being the selection of the next place of meeting. Dr. J. G. Love, of Springfield, extended an invitation from Greene County Medical Society for the Association to hold the 1924 meeting at Springfield. He stated that the Greene County Medical Society had expressed its desire for the Association to meet in Springfield in 1923 but at the 1922 session they did not feel like competing with Joplin for the privilege of entertaining us at this session.

Dr. C. B. Francisco, of Kansas City, said the delegates from Jackson County Medical Society had come to this meeting prepared to invite the Association to meet in Kansas City in 1924, but when they found that Springfield had been disappointed in their ambition at the 1922 meeting and that Greene County Medical Society desired to entertain the Association in 1924, the Jackson County delegates had decided to retire from the field at this meeting and entertain the hope that they could induce the Association to meet in Kansas City in 1925.

Dr. A. H. Hamel, of St. Louis, moved that the nominations be closed and that Springfield be selected as the place of meeting for 1924. Seconded and carried.

On motion adjourned until Wednesday, May 9, at 2 p. m.

Wednesday, May 9, 1923

The House of Delegates was called to order by the President, Dr. McComas, at 2:15 p. m., Wednesday, May 9.

The secretary read the minutes of the preceding meeting.

On motion the minutes, as read were adopted.

The secretary read the resignation of Dr. J. Frank Harrison as Councilor of the Ninth District.

Dr. W. H. Breuer, of St. James, moved to accept the resignation and extend to Dr. Harrison the thanks of the Association for the service during his term. Seconded and carried.

Dr. Breuer moved that a committee of three be appointed by the President as a sub-committee to work in conjunction with the Committee on Medical Education to further the establishment of a State general hospital and the re-establishment of the four-year medical course in medicine at the state university.

Dr. McVay seconded the motion and it was adopted.

The Secretary read the following resolution adopted by the General Session and referred to the House of Delegates:

Resolved, That the Missouri State Medical Society in general session assembled hereby recommends, urges, and requests, that the House of Delegates or such other power or authority as may have jurisdiction, create a permanent Public Health Legislative Bureau, and that they arrange for the liberal financing of such Bureau by means of individual assessment, or by increasing the annual dues of each member, or by such other means, or methods, as may seem best adapted for the maintenance of said Bureau.

W. T. ELAM,
J. F. OWENS,
J. I. BYRNE.

Dr. Jackson moved that the resolution be referred to the Council. Seconded and carried.

The next order of business was the election of officers.

Dr. Jabez N. Jackson, of Kansas City, nominated Dr. G. Wilse Robinson of Kansas City for President. The nomination was seconded by Dr. W. A. Clark, of Jefferson City, who moved that the nominations be closed and that Dr. Robinson be elected by acclamation. This motion was seconded by Dr. A. R. Kieffer, of St. Louis, and numerous others and carried unanimously.

The President appointed Drs. Jackson and Clark a committee to escort the newly elected President to the chair.

The report of the nominating committee was read by Dr. W. H. Breuer, of St. James, as follows:

REPORT OF NOMINATING COMMITTEE

We, your Nominating Committee, desire to submit the following nominations.

For vice presidents:

First vice president, J. W. Love, Springfield.

Second vice president, Robt. F. Hyland, St. Louis.

Third vice president, A. J. Campbell, Sedalia.

Fourth vice president, J. B. Wright, Trenton.

Fifth vice president, R. L. Hamilton, Richmond.

Delegates to the American Medical Association: E. P. North, St. Louis; J. Curtis Lyter, St. Louis.

Member and Chairman Committee on Health and Public Instruction for three years: H. E. Pearse, Kansas City.

Members of the Defense Committee: Charles E. Hyndman, St. Louis, Chairman; R. E. Schlueter, St. Louis; R. S. Vitt, St. Louis.

Member of Vaccination Committee: H. W. Carle, St. Joseph.

Members of Committee on Cancer: George Gellhorn, St. Louis, Chairman; E. D. Twyman, Kansas City; C. A. Good, St. Joseph.

Councilors:

First District, Austin McMichael, Rockport.

Second District, H. S. Conrad, St. Joseph.

Fourth District, Geo. M. Bristow, Princeton.

Eighth District, B. P. Wentker, St. Charles.

Ninth District, A. R. McComas, Sturgeon.

Eighteenth District, Jno. P. Burke, California.

Twenty-first District, Theodore F. Estel, Altenburg.

Twenty-third District, T. J. Rigdon, Kennett.

Twenty-fourth District, T. W. Cotton, Van Buren.

Twenty-fifth, R. W. Gay, Ironton.

The Committee:

W. H. Breuer, Chairman.

On motion duly seconded the report of the Nominating Committee was adopted unanimously. The President appointed the following committee to press the resolutions referring to the Harrison and Prohibition Acts and training veterans as chiropractors: Dr. E. P. North, of St. Louis, Chairman; Dr. S. T. Ragan, of Moberly; Dr. C. B. Francisco, of Kansas City.

The President announced the following committee to work in conjunction with the Committee on Medical Education: Dr. Frank G. Nifong, Columbia; Dr. R. S. Vitt, St. Louis; Dr. J. C. Parrish, Vandalia.

Dr. Jackson and Dr. Clark escorted Dr. G. Wilse Robinson, the newly elected President, to the chair.

Dr. McComas presented Dr. Robinson to the members.

Dr. Robinson in accepting the office said it would be impossible for him to express in words his full

appreciation of the very high honor the members had conferred upon him by electing him as president of the Association and he would try to show that appreciation by his service to the organization during the coming year. He would try, he said, to give such service as the retiring president has given in the work and of other presidents who had preceded him in this high office. He reminded the members that he was their servant and that during his term of office he wanted them to feel free to call upon him to do anything that they desired done for the cause which he promised to use his best and fullest powers to accomplish.

On motion the House of Delegates adjourned sine die.

MINUTES OF THE COUNCIL

Tuesday, May 8, 1923

The Annual meeting of the Council was held in the Class Room of the Scottish Rite Cathedral, Joplin, May 8, 1923, and called to order by the Chairman, Dr. A. H. Hamel, at 2 p. m. The following Councilors responded to the roll call:

4th District, J. B. Wright, Trenton.

9th District, J. F. Harrison, Mexico.

12th District, Spence Redman, Platte City.

13th District, Geo. E. Bellows, Kansas City.

16th District, T. B. M. Craig, Nevada.

17th District, Guy Titworth, Sedalia.

18th District, Jno. P. Burke, California.

19th District, W. A. Clark, Jefferson City.

20th District, A. H. Hamel, St. Louis.

24th District, T. W. Cotton, Van Buren.

26th District, W. H. Breuer, St. James.

28th District, A. L. Anderson, Springfield.

29th District, R. L. Wills, Neosho.

Dr. W. H. Breuer, of St. James, moved that the reading of the minutes be dispensed with. Seconded and carried.

The Secretary read the report of the executive committee as follows:

Report of the Executive Committee

The executive committee has held several meetings at which important questions were discussed.

At the meeting of July 28, 1922, a member appealed to the executive committee to issue a warning against fee splitting in his district. He stated that the fee splitting custom among members in nearby cities caused general practitioners to send cases requiring the attention of specialists to the fee splitting members in the cities although it was freely admitted that the specialists in the home towns were competent operators and well equipped to do the work. The Council passed a resolution condemning the practice and ordered the secretary to send copies of it to the county societies and to publish it in THE JOURNAL.

At the meeting held December 19, 1922, a delegation from the Board of Curators of the University of Missouri submitted plans for the establishment of a state general hospital at Columbia and for the re-establishment of the four year course in medicine. The delegation requested the co-operation of the Association in furthering these objects. The executive committee suggested certain changes in the plan which were then referred back to the board of curators, the changes acceded to and at a subsequent meeting the committee pledged its support to the board in this undertaking.

In accordance with the plan a bill was introduced in the legislature providing for a state general hospital at Columbia and asking an appropriation of \$250,000 as the first unit in a building ultimately intended to cost \$1,000,000. The bill, unfortunately, did not pass.

The Committee on Health and Public Instruction submitted the draft of a bill to rewrite the Medical Practice Act, which, after considerable discussion, was approved by the executive committee. This bill was introduced in the Senate by Senator Cave as Senate Bill 138 and by Mr. Tucker, of Stoddard County and Mr. Maxey, of Bates County, in the House, as House Bill 287. Concerning the fate of this bill in the General Assembly you will be informed by the Committee on Health and Public Instruction.

The executive committee authorized the employment of a legislative agent to keep the officers and the Committee on Health and Public Instruction informed of the progress of bills in the Legislature and promote the passage of bills that were approved.

The executive committee believes the money spent in this undertaking was well placed and put them in a position to act promptly on bills needing attention without the necessity of sending large delegations of members at frequent intervals to the capital.

The referendum on the medical practice act passed by the 1920 legislature has been disposed of. The Supreme Court decision was that the number of signatures was insufficient. We lost. The total cost to the State Medical Association is approximately \$4,000.

A member asked for a ruling on the question of advertising X-ray photographing and treatment in the lay press. The executive committee informed him that such advertising was contrary to the Principles of Medical Ethics.

A county society asked whether it would be proper for the members to be listed on a placard to be tacked in the elevators and hotel lobbies of the city. It was explained to the committee that the purpose of this listing was to enable laymen to distinguish between reputable physicians and the "other kind." The executive committee did not approve the plan.

A. H. Hamel, Chairman.

Dr. Spence Redman, of Platte City, moved that the report be adopted. Seconded and carried.

The Secretary read the request for a charter for Stoddard County and separation from Butler County.

Dr. W. H. Breuer, of St. James, moved that the charter be issued to Stoddard County Medical Society as a separate unit. Seconded and carried.

The President's message was taken up and on motion the first recommendation, that the term of Councilors be shortened from five to three years, was approved.

The second and third recommendation required no action by the Council.

On motion duly seconded, the fourth recommendation, suggesting that the Association subscribe for bulletins published by component societies of our Association, and send to the President and the Chairman of the Council, was approved.

The report of the Committee on Health and Public Instruction was taken up and on motion of Dr. Breuer it was ordered that that report be not published, in accordance with the suggestion of the chairman of the committee.

The chairman appointed the following auditing committee: Spence Redman, W. H. Breuer and T. B. M. Craig.

Dr. Chas. E. Hyndman, Chairman of the Defense Committee, reported on the case of Dr. Chas. A. Orr, of Hale, who had been sued for alleged abortion, the plaintiff claiming that her health had been injured and asked damages. Dr. Orr did not report the case to the committee, nor ask assistance, feeling that he would rather fight such a case alone. He was acquitted. He then asked the committee to

allow him \$200 for attorney's fee. Dr. Hyndman asked the Council to instruct him what action to take.

After a discussion, Dr. Breuer moved that the Committee on Defense be authorized to pay Dr. Orr \$100 for attorney's fee. Seconded and carried.

The following Councilors reported on the conditions in their Districts: Drs. Breuer, Burke, Redman, Craig, Wills, Welch, for Dr. Hawkins, Wright, Cotton, Hamel.

On motion adjourned to Wednesday, May 9, at 3 p. m.

Wednesday, May 9, 1923

The council was called to order by the Chairman at 3 p. m., with a quorum present.

The minutes of the preceding meeting were read by the Secretary and approved.

The report of the auditing committee was read by Dr. W. H. Breuer, of St. James, as follows:

We, your auditing committee, have examined the books and checked the bills with books and compared the balances and bank books and find them correct.

William A. Breuer,
Spence Redman,
T. B. M. Craig,
The Committee.

On motion, the report was adopted.

The Secretary read a resolution referred to the Council by the General meeting as follows:

Resolved, That the Missouri State Medical Society in general session assembled hereby recommends, urges, and requests, that the House of Delegates or such other power or authority as may have jurisdiction, create a permanent Public Health Legislative Bureau, and that they arrange for the liberal financing of such Bureau by means of individual assessment, or by increasing the annual dues of each member, or by such other means, or methods as may seem best adapted for the maintenance of said Bureau.

W. T. ELAM,
J. F. OWENS,
J. I. BYRNE.

Dr. W. H. Breuer, of St. James, moved that the resolution be referred to the executive committee. Seconded by Dr. G. W. Hawkins, of Salisbury. After a discussion by Drs. Breuer, Conrad, Bellows, McComas, Anderson, the motion carried.

Dr. T. B. M. Craig, of Nevada, Councilor of the 16th District, stated that the members in Cedar County desired to join Vernon County Medical Society because it seemed impossible to maintain a good working organization in Cedar County. He asked for instructions on the best method of combining the two societies.

The Chairman informed Dr. Craig that the members of Cedar County should request the executive committee for approval of their desire to hyphenate their society with Vernon County Medical Society.

Dr. G. Wilse Robinson, of Kansas City, the newly elected President, took the chair and called for nominations for Chairman of the Council.

Dr. G. W. Hawkins, of Salisbury, nominated Dr. A. H. Hamel, of St. Louis, to succeed himself as chairman of the Council. Seconded. There being no other nominations Dr. Hawkins moved that Dr. Hamel be elected by acclamation. Seconded and carried unanimously. The President declared Dr. Hamel reelected chairman of the Council.

Dr. Hamel resumed the chair.

Dr. A. R. McComas, of Sturgeon, nominated Dr. J. Franklin Welch for re-election as Treasurer. The nomination was seconded by several members and on motion he was elected by acclamation.

Dr. Jno. P. Burke, of California, nominated Dr. E. J. Goodwin, of St. Louis, for re-election as Secretary and Editor. The motion was seconded by several members and he was elected by acclamation.

Dr. A. R. McComas, of Sturgeon, nominated Dr.

Goodwin for re-election as secretary of the Council. The nomination was seconded and carried and Dr. Goodwin was declared elected by acclamation.

Dr. G. W. Hawkins, of Salisbury, nominated the following for the executive committee of the Council: Drs. A. H. Hamel, of St. Louis, Chairman; A. R. McComas, of Sturgeon; W. H. Breuer, of St. James. Seconded.

There being no other nominations it was moved and seconded that these members be elected by acclamation. The motion carried and they were declared elected as the Executive Committee of the Council.

On motion adjourned *sine die*.

MINUTES OF THE GENERAL MEETING

Auditorium, Scottish Rite Cathedral

Tuesday, May 8, 1923—Morning Session

The scientific session of the Sixty-Sixth Annual Meeting of the Missouri State Medical Association met in the Auditorium of the Scottish Rite Cathedral at Joplin, Missouri, Tuesday, May 8, 1923, and was called to order by Second Vice President, Dr. Frank I. Ridge, of Kansas City, at 10 a. m.

The first paper of the morning session was presented by Dr. Chas. C. Dennie, of Kansas City, his subject being "The Wassermann Reaction in the Diagnosis of Syphilis."

This paper was discussed by Dr. G. Wilse Robinson, of Kansas City, with Dr. Dennie closing the discussion.

The next paper was presented by Dr. Jno. R. Caulk, of St. Louis, subject, "The Value of the Author's Punch in the Removal of Selected Obstructions in the Bladder."

Drs. Clinton K. Smith, of Kansas City, and Edwin Schisler, of St. Louis, discussed this paper, with Dr. Caulk closing the discussion.

The subject, "Hemangioma with Calcification: Pre-Operative and Post-Operative X-ray Findings," was presented by Dr. H. J. Ravold, of St. Joseph.

Discussion of this paper was opened by Dr. Paul Forgrave, of St. Joseph. He was followed by Dr. E. H. Skinner, of Kansas City, and Dr. Ravold concluded the discussion.

"Gastric Hyperacidity as an Etiological Factor in Pyorrhea Alveolaris" was the subject of a paper presented by Dr. Jas. I. Tyree, of Joplin.

This paper was discussed by Drs. Jno. M. Bell, of St. Joseph, E. H. Skinner and Chas. C. Dennie, of Kansas City, and George S. Dowell, of Braymer. Dr. Tyree closed the discussion.

The last paper of the morning session was read by Dr. Fred W. Bailey, of St. Louis, his subject being "Errors in the Home Treatment of Appendicitis."

Discussion of this paper was opened by Dr. J. D. Griffith, of Kansas City, who was followed by Drs. Marsh Pitzman, of St. Louis, Jno. M. Bell, of St. Joseph, Edwin Schisler, of St. Louis, and Abram Miller, of Kansas City. Dr. Bailey closed the discussion.

Adjournment was then declared until two o'clock.

Afternoon Session

The afternoon session was presided over by the President, Dr. A. R. McComas, of Sturgeon. The following papers were read and discussed.

"New Methods of Diagnosing Early Pregnancy," was the subject of the paper read by Dr. W. C. Gayler, of St. Louis.

This paper was discussed by Dr. Henry Schneiderman, of Kansas City, with Dr. Gayler closing the discussion.

The second paper was presented by Dr. V. P. Blair, of St. Louis, on "Hare Lip."

No discussion followed the reading of this paper.

Dr. Warren R. Rainey, of St. Louis, read a paper on "Prevention of Deformities in Children with Acute Surgical Lesions."

The discussants were Drs. J. Edgar Stewart, of St. Louis, Frank G. Nifong, of Columbia, Chas. E. Hyndman, of St. Louis, C. B. Francisco and J. D. Griffith, of Kansas City, with Dr. Rainey closing the discussion.

The Chairman read a telegram from Dr. Borden S. Veeder, of St. Louis, stating that he had been called East owing to the serious illness of his sister, and could not be present to read his paper.

"Epilepsy in Ex-Service Men," was the title of the paper read by Dr. F. M. Barnes, Jr., of St. Louis.

Dr. E. H. Skinner, of Kansas City, whose paper was scheduled for Thursday afternoon, received permission to present it at this time. His subject was "Successful Radiation Treatment of Lymphosarcoma."

There was no discussion of this paper and adjournment was declared until 9:30 a. m., Wednesday.

Wednesday, May 9, 1923—Morning Session

The meeting was called to order by President McComas at 9:30 a. m., who called Vice-President E. C. Callison, of Kirksville, to the chair.

The first paper of the session was presented by Dr. A. L. Anderson, of Springfield, his subject being "Chronic Pneumonitis Following Influenza."

Drs. J. J. Singer, of St. Louis, Frank I. Ridge, of Kansas City, J. T. Hornback, of Nevada, and Herman E. Pearse, of Kansas City, discussed this paper. The discussion was concluded by Dr. Anderson.

Dr. Sam H. Snider, of Kansas City, read a paper on "The Value of the X-ray in the Diagnosis of Chest Conditions."

Dr. Snider having exceeded the twenty-minute limit, Dr. Herman E. Pearse, of Kansas City, received recognition and said: "This subject is so fraught with interest and has so much to do with our every-day work that I will be glad to cut my paper shorter if Dr. Snider will finish his."

Dr. J. D. Griffith, of Kansas City, moved that the rules be suspended and Dr. Snider be given five to ten minutes to finish. The motion prevailed and Dr. Snider concluded his paper.

Drs. J. J. Singer, of St. Louis and David S. Dann, of Kansas City, discussed this paper, with Dr. Snider closing the discussion.

The third paper of the morning session was read by Dr. David S. Dann, of Kansas City, his subject being "The Value of Roentgen Ray Measurements in Cardiac Examination."

Discussion on this paper was opened by Dr. E. H. Skinner, of Kansas City, followed by Drs. Henry J. Schneiderman and Scott P. Child, of Kansas City, with Dr. Dann concluding the discussion.

At this time President McComas resumed the chair, and called for the final paper of the morning session, which was presented by Dr. Herman E. Pearse, of Kansas City, his subject being "Discussion on Recent Legislation."

This paper was discussed by Drs. W. T. Elam, of St. Joseph, A. H. Hamel, of St. Louis, Guy Mitchell, of Branson and Abram Miller, of Kansas City.

President McComas then introduced Mr. William Condon, of St. Louis, saying: "I wish to call on a gentleman not a doctor, who helped us during our struggles of last winter. Many of you men do not know this man. I wish you all knew him. He has some qualities that make him the peer of

any of us. He is resourceful and clever and honest." (Applause.)

Mr. Condon responded by saying: "I came here wholly unprepared to make any remarks or speeches. I have listened very attentively to the remarks of Dr. Pearse and others, and I think he is on the right track. I want to thank the President and members for the courtesy extended to me." (Applause.)

Secretary Goodwin read a resolution adopted by the Buchanan County Medical Society, introduced by Drs. W. T. Elam, J. F. Owens and J. F. Byrne, as follows:

Resolved, That the Missouri State Medical Association in general session assembled hereby recommends, urges, and requests, that the House of Delegates or such other power or authority as may have jurisdiction, create a permanent Public Health Legislative Bureau, and that they arrange for the liberal financing of such bureau by means of individual assessment, or by increasing the annual dues of each member, or by such other means, or methods, as may seem best adapted for the maintenance of said Bureau.

W. T. ELAM,
J. F. OWENS,
J. I. BYRNE.

Dr. Elam moved the adoption of the resolution, which was seconded and carried.

On motion the resolution was referred to the House of Delegates.

The discussion of the paper presented by Dr. Pearse was then continued by Drs. Emmett P. North, of St. Louis, and C. R. Woodson, of St. Joseph. Dr. Pearse concluded the discussion.

On motion the meeting adjourned until two o'clock.

Afternoon Session

The session was called to order at two o'clock by Vice President Dr. Frank I. Ridge, of Kansas City.

The paper on "Theory and Practice of Antisepsis" was presented by Dr. Marsh Pittman, of St. Louis.

Discussion of this paper was given by Drs. M. Hayward Post, of St. Louis, and Warren R. Rainey, of St. Louis. Dr. Pittman closed the discussion.

The paper on "Secondary Operations in Thyrotoxicosis," by Drs. Edward G. Blair and Kerwin W. Kinard, of Kansas City, was read by Dr. Kinard.

Dr. E. V. Mastin, of St. Louis, followed with his paper on "Diagnosis and Treatment of Exophthalmic Goitre," and Dr. O. H. McCandless of Kansas City presented the last paper of the symposium, his subject being "X-ray Therapy in Thyroids."

These papers were discussed by Drs. John M. Bell, of St. Joseph, David S. Dann, Edward G. Blair, and E. H. Skinner, of Kansas City, Jacob J. Singer, of St. Louis, with Drs. Kinard and McCandless closing the discussion.

The final paper of this session was presented by Dr. T. G. Orr, of Kansas City, on "Essential Factors in the Treatment of Intestinal Obstructions."

Drs. Warren R. Rainey, of St. Louis, and W. T. Elam, of St. Joseph, questioned the essayist briefly as to some points mentioned in his paper.

On motion adjourned until 9:30 a. m., Thursday.

Thursday, May 9, 1923—Morning Session

The morning session was called to order at 9:40 by President McComas.

The first paper presented was that of Dr. Isaac D. Kelley, Jr., of St. Louis, his subject being "The Direct Vision Adenotome for the Removal of Adenoids."

This paper was discussed by Drs. M. Hayward Post, St. Louis, George S. Dowell, of Braymer, J. Ellis Jennings, of St. Louis, and John H. Timberman, of Chillicothe, with Dr. Kelley closing the discussion.

The next paper was read by Dr. J. Ellis Jennings, of St. Louis, on "Enucleation of the Eyeball."

Dr. Wm. F. Hardy, of St. Louis, discussed this paper.

"Two Striking Cases of Optic Neuritis and Choroido-Retinitis Secondary to Accessory Nasal Sinus Disease" was the subject of the paper presented by Dr. M. Hayward Post, of St. Louis.

This paper was discussed by Drs. Wm. F. Hardy and Isaac D. Kelley, of St. Louis, with Dr. Post concluding the discussion.

Dr. Frank D. Dickson, of Kansas City, read a paper on "The Operative Mobilization of Ankylosed Joints," with moving picture demonstration.

The discussants were Drs. J. Edgar Stewart, M. L. Klinefelter, and Roland Hill, of St. Louis, and H. K. Cowen, of Ash Grove, Dr. Dickson closed the discussion.

"Common Mistakes in the Treatment of Poliomyelitis" was the subject of the paper read by Dr. J. Edgar Stewart, of St. Louis.

This paper was discussed by Drs. Frank D. Dickson, of Kansas City, R. L. Andrae, of Louisiana and M. L. Klinefelter, of St. Louis. Dr. Stewart concluded the discussion.

Secretary Goodwin read the following resolution and moved its adoption:

Resolved, That our very warm thanks be tendered to the Scottish Rite bodies for the privilege of using their Cathedral for our meetings. We congratulate the Bodies upon having erected such a beautiful structure and furnishing it in such artistic and tasteful splendor. We desire also to express our thanks to the Jasper County Medical Society for the delightful manner in which we have been entertained and cared for, and we also thank the daily press for the generous publicity given our proceedings.

The motion to adopt the resolution prevailed.

The final paper of the morning session was presented by Dr. S. A. Grantham, of Joplin, his subject being "A Method of Implanting Bone Graft in the Treatment of Pott's Disease."

This paper was discussed by Dr. M. L. Klinefelter, of St. Louis. Dr. Grantham closed the discussion, after which the session adjourned until two o'clock.

Afternoon Session

The final session of the meeting was called to order at two o'clock by President McComas.

The first paper of the afternoon was presented by Dr. Elmer D. Twyman, of Kansas City, on the subject "Cancer Surgery; Practical Considerations."

Dr. E. C. Ernst, of St. Louis, read a paper on the subject "Recent Physical and Mechanical Development of High Voltage X-rays and Their Direct Relation to Cancer Therapy."

Discussion of Dr. Ernst's paper was opened by Dr. Elmer D. Twyman, of Kansas City, followed by Drs. H. J. Ravold, of St. Joseph, John F. Morgan, of Joplin, and T. Guy Hetherlin, of Louisiana, with Dr. Ernst closing.

The paper on "Therapeutic Use of the Duodenal Tube" by Dr. Horace W. Carle, of St. Joseph, was read by title.

Upon motion of Dr. Ernst, duly seconded and carried, the Sixty-Sixth Annual Meeting of the Missouri State Medical Association adjourned, *sine die*.

SOCIETY OF MEDICAL SECRETARIES FIFTEENTH ANNUAL MEETING

Joplin, May 9, 1923

The fifteenth annual meeting of the Secretaries Association of the State Medical Association was held in the Gold Room of the Connor Hotel, Joplin, May 9, 1923, the president, Dr. M. P. Overholser,

of Harrisonville, presiding. The attendance including members and guests was 38.

The meeting was preceded by the annual banquet which was much enlivened by several anecdotes related by Dr. Pearse.

Dr. Overholser made the address of welcome, calling attention to the fact that some of the county societies were falling behind in their activities and that some means must be found for bringing them back with renewed vigor and a determination to co-operate with the State Association in the task which it has before it at the next legislature. He also gave a descriptive outline of the good accomplished in typhoid fever by preventive medicine.

"Our State Society" was the subject of Dr. McComas' address. He mentioned some of the good work done by the organization and told the members that if the State Association continued to thrive it would depend on the cooperation of the county societies; and the secretary of the county society is the one who must bear the burden of keeping the society together so that its members may know what is going on and can do their part individually as well as collectively. The doctors, he said, must take their places as citizens and through the legislature fight for the improvement of health conditions throughout the state.

Dr. Pearse made a very interesting talk on medical legislation, telling the members what had been done by the State Association in the last legislature and concluded by saying that the special laws on treating the sick must be wiped off the statutes of the State of Missouri.

Election of officers for 1923-24 was the next in order. The following were elected, the vote being unanimous in each instance: President, Jas. I. Tyree, of Joplin; vice president, J. S. Triplett, of Harrisonville; secretary, J. T. Hornback, of Nevada.

J. T. HORNBACK, M. D.,
Secretary.

MEMBERS REGISTERED AT THE SIXTY-SIXTH ANNUAL MEETING

Joplin, May 8, 9, 10, 1923

- Adair, T. W., Archie.
- Alberty, O. L., Carl Junction.
- Altham, A. G., Metz.
- Amos, R. W., Joplin.
- Anderson, A. L., Springfield.
- Andrae, R. L., Louisiana.
- Armstrong, M. J., Springfield.
- Bailey, Fred W., St. Louis.
- Balsley, C. M., Joplin.
- Barker, J. W., Marionville.
- Barnard, W. C., Seneca.
- *Barnard, Mrs. W. C., Seneca.
- Barnes, Francis M., Jr., St. Louis.
- Barson, J. W., Joplin.
- Bates, G. C., Adrian.
- *Baxter, Leroy W., Columbus, Kansas.
- Beattie, Wm. R., Springfield.
- Beattie, T. J., Kansas City.
- Bell, John M., St. Joseph.
- Bellows, G. E., Kansas City.
- Benage, O. C., Conway.
- Billings, J. M., Lebanon.
- Blair, Edward G., Kansas City.
- Blair, V. P., St. Louis.
- Bland, Warren W., Vandalia.
- Bohan, Peter T., Kansas City.
- Bohannon, W. T., Nevada.
- Bonham, V. Q., Fayette.
- *Boswell, J. H., Baxter Springs, Kansas.
- Boughnou, H. P., Kansas City.
- Box, E. M., Springfield.
- Brady, Jules M., St. Louis.
- Brashier, H. C., Mexico.
- Brown, F. H., Billings.
- Brown, Tinsley, Hamilton.
- *Browne, H. A., Galena, Kansas.
- Breuer, Wm. H., St. James.
- Bruton, J. W., Mt. Vernon.
- Burch, E. J., Carthage.
- Burch, Geo. W., Kansas City.
- Burford, C. E., St. Louis.
- Burke, John P., Sr., California.
- Burns, J. Edward, Kansas City.
- Busiek, Urban J., Springfield.
- Callaway, L. H., Nevada.
- *Callaway, Mrs. L. H., Nevada.
- Callison, E. C., Kirksville.
- Campbell, Albert J., Sedalia.
- *Campbell, Wm. M., Vinita.
- Carle, H. W., St. Joseph.
- Caulk, John R., St. Louis.
- Chalkley, A. J., Lexington.
- Cheatham, R. F., Diamond.
- Chenoweth, J. A., Joplin.
- Chenoweth, L. C., Joplin.
- Child, Scott P., Kansas City.
- *Chouke, Kehar Singh, St. Louis.
- Chowning, Thos., Hannibal.
- *Church, H. L., Pittsburg, Kansas.
- Clairborne, E. G., Decaturville.
- Clark, H. M., Platte City.
- *Clark, Mrs. H. M., Platte City.
- Clark, J. W., Carterville.
- Clark, Morris H., Kansas City.
- Clark, W. A., Jefferson City.
- *Clegg, J. T., Siloam Springs, Arkansas.
- Clinton, Lloyd B., Carthage.
- Cole, Paul F., Springfield.
- *Coleman, W. O., Joplin.
- Colson, J. R., Schell City.
- Conrad, Harry S., St. Joseph.
- Cook, F. L., Independence.
- Coombs, M. O., Joplin.
- Copeland, Carlos, Monett.
- Cotton, T. W., Van Buren.
- Cowan, R. D., Aurora.
- Cowen, H. K., Ash Grove.
- Craig, C. H., Webb City.
- Craig, T. B. M., Nevada.
- Crockett, James A., Stanberry.
- Cromley, J. F., Lainar.
- Cullers, D. E., Stella.
- Curl, A. C., Schell City.
- Dabbs, D. N., Rocky Comfort.
- *Dann, David S., Kansas City.
- Dawson, J. W., Eldorado Springs.
- *DeArman, M. M., Miami, Oklahoma.
- Deatherage, W. N., Galena.
- Delzell, W. A., Springfield.
- Dennie, Charles C., Kansas City.
- DeVilbiss, E. F., Kansas City.
- *Dielman, Lee L., Kansas City.
- *Dodge, R. K., Fall River, Kansas.
- Dorsett, Lee, St. Louis.
- Dowell, George S., Braymer.
- Dowell, Horace S., Maryville.
- Duckett, C. E., Milford.
- Duckett, T. H., Milford.
- Duemler, T. B., Seneca.
- Dumbauld, B. A., Webb City.
- Dunaway, L. T., Eldorado Springs.
- Duncan, Ralph E., Kansas City.
- Dyer, Clyde P., St. Louis.
- Edens, L. M., Cabool.

*Visitor.

*Visitor.

- Edmondson, J. L., Stella.
 Elam, W. T., St. Joseph.
 Elkins, C. B., Springfield.
 Enloe, Cortez F., Jefferson City.
 Epler, J. W., Kearney.
 Ernst, Edwin C., St. Louis.
 Estel, T. F., Altenburg.
 Farrington, O. P., Green Top.
 Fassett, Chas. Wood, Kansas City.
 Ferguson, W. J., Sedalia.
 Fessenden, E. M., Springfield.
 Fischel, Ellis, St. Louis.
 Fletcher, J. H., Cleveland.
 Forgrave, Paul, St. Joseph.
 Foster, H. F., Neosho.
 Foster, T. W., Butler.
 *Fowler, J. H., Harrison, Arkansas.
 *Fowler, Mrs. J. H., Harrison, Arkansas.
 Francisco, C. B., Kansas City.
 Frankenburger, J. M., Kansas City.
 Freeman, A. B., Eldorado Springs.
 Frick, William, Kansas City.
 Frischer, Julius, Kansas City.
 Fulton, W. I., Mt. Vernon.
 Gaddie, W. R., Duenweg.
 Gayler, W. C., St. Louis.
 Gifford, A. W., Springfield.
 Gillmor, Wm. L., Mt. Washington.
 Gish, Geo. J. P., Minden Mines.
 Glynn, Robert, Springfield.
 Goodwin, E. J., St. Louis.
 Grantham, S. A., Joplin.
 Graves, William W., St. Louis.
 Gregg, Mitchell, Joplin.
 Griffith, J. D., Kansas City.
 Grim, Ezra C., Kirksville.
 *Guthrie, J. A., Neosho.
 Haire, Robert D., Clinton.
 Hamel, A. H., St. Louis.
 Hamilton, R. L., Richmond.
 Handley, W. E., Springfield.
 Hardy, Wm. F., St. Louis.
 *Harper, R. H., Afton, Oklahoma.
 Harris, E. S., Independence.
 Harrison, J. F., Mexico.
 Hartley, L. D., Nebo.
 *Hartman, W. V., Pittsburg, Kansas.
 Harutun, M. B., Joplin.
 Hatcher, E. D., Carthage.
 Hawkins, G. W., Salisbury.
 Hazlewood, Varney, Webb City.
 Heibner, E. A., Nevada.
 Helton, J. W., Chillicothe.
 Henderson, W. G., Oak Hill.
 Henry, B. M., Alba.
 Herndon, A. S., Camden Point.
 Hetherlin, T. Guy, Louisiana.
 Hill, Howard, Kansas City.
 Hill, Roland, St. Louis.
 Hogg, Garrett, Springfield.
 Hogue, John A., Holcomb.
 Holbrook, Ralph W., Kansas City.
 Hornback, J. T., Nevada.
 Horst, O. C., Springfield.
 Hoshaw, U. G., Joplin.
 Hunt, Claude J., Kansas City.
 Hyland, Robert F., St. Louis.
 Hyndman, Charles E., St. Louis.
 Irland, Robert D., Kansas City.
 Jackson, Jabez N., Kansas City.
 James, E. D., Joplin.
 James, Edwin F., Springfield.
 James, R. M., Joplin.
 Jarvis, N. W., Festus.
 Johnson, J. W., Hayti.
 Johnston, B. L., Manes.
- Jones, Geo. H., Kansas City.
 Kelley, I. D., Jr., St. Louis.
 Kerr, H. L., Crane.
 Ketcham, C. M., Carthage.
 Kieffer, A. R., St. Louis.
 Kimberlin, J. W., Kansas City.
 Kinard, Kerwin, Kansas City.
 Kincheloe, M. B., Joplin.
 Klinefelter, M. L., St. Louis.
 Knabb, A. D., Springfield.
 Knott, Minerva, Jefferson City.
 LaForce, H. A., Carthage.
 Lamson, R. C., Neosho.
 Langley, J. W., Granby.
 Laning, J. H., Kansas City.
 LaRue, Frank, Dexter.
 Leaming, H. A., Joplin.
 Lindsay, J. W., Conway.
 Lounsberry, R. C., Springfield.
 Love, J. G., Sedalia.
 Love, Joseph W., Springfield.
 Love, W. S., Nevada.
 Loveland, W. S., Mt. Vernon.
 *Lowdermilk, R. C., Galena, Kansas.
 McAlester, A. W., Kansas City.
 *McCallum, Charles, Quapaw, Oklahoma.
 McCallum, F. M., Kansas City.
 McCandless, Oliver H., Kansas City.
 McComas, Arthur R., Sturgeon.
 McDermott, Joseph L., Kansas City.
 McDonald, Chett, Kansas City.
 McGaugh, E. T., Richmond.
 McGaughey, H. D., Joplin.
 *McKinney, F. L., Galena, Kansas.
 McMichael, Austin, Rockport.
 McVay, James R., Kansas City.
 Major, Hermon S., Kansas City.
 Maness, C. E., Neosho.
 Maples, F. H., Mt. Vernon.
 *Markham, R. M., Scammon, Kansas.
 Massey, Thos. J., Lockwood.
 Mastin, Edward V., St. Louis.
 Miller, Abram, Kansas City.
 Miller, J. E., Mexico.
 Miller, S. H., Joplin.
 Miller, Thos. F., Lamar.
 Mitchell, Ernest, Monett.
 Mitchell, Guy B., Branson.
 Montgomery, J. G., Kansas City.
 Moody, Ellsworth, Joplin.
 Morfit, John C., St. Louis.
 Morgan, John F., Joplin.
 Murphy, Franklin E., Kansas City.
 Murray, S. A., Holden.
 Mynatt, A. J., Lamar.
 Neal, J. Park, Kansas City.
 Neff, Robert L., Joplin.
 Nifong, Frank G., Columbia.
 Norman, R. M., Ava.
 Norris, E. J., St. Louis.
 North, Emmett P., St. Louis.
 Noyes, Guy L., Columbia.
 Nulton, Ida L., Livonia.
 O'Dell, T. T., Marionville.
 Olmstead, W. H., St. Louis.
 Orr, T. G., Kansas City.
 Owens, J. F., St. Joseph.
 Overholser, M. P., Harrisonville.
 Page, L. E., Kirksville.
 Pare, E. Y., Leeton.
 Parker, H. F., Warrensburg.
 Parker, W. J., Steelville.
 Parrish, J. S., Pleasant Green.
 *Patton, W. G., Ft. Scott, Kansas.
 Pearse, Herman E., Kansas City.
 *Phillips, Irvin, Pitcher, Oklahoma.

*Phillips, Mrs. Irvin, Pitcher, Oklahoma.
 Pierce, Charles E., Republic.
 Pifer, J. D., Joplin.
 *Pinnell, G., Miami, Oklahoma.
 Pitzman, Marsh, St. Louis.
 *Pohlman, A. G., St. Louis.
 Poorman, Bert A., Kansas City.
 Popp, E. M., Altenburg.
 Popplewell, W. H., Sheldon.
 Post, M. Hayward, St. Louis.
 Post, W. B., Carthage.
 *Powell, James T., Maysville, Arkansas.
 Powers, Everett, Carthage.
 Powers, H. C., Joplin.
 Pritchett, Paul, Webb City.
 Ragan, S. T., Moberly.
 Rainey, Warren R., St. Louis.
 Ravold, H. J., St. Joseph.
 Redman, Spence, Platte City.
 *Reid, Chas. T., Columbus, Kansas.
 *Reynolds, J. R., Neosho.
 Ridge, Frank I., Kansas City.
 Robertson, S. J., McDowell.
 Robinson, G. Wilse, Kansas City.
 Rooks, O. R., Trenton.
 Roseberry, E. M., Neosho.
 Russell, C. W., Springfield.
 Russell, R. L., Jefferson City.
 Sale, Onal A., Neosho.
 *Sample, Roy O., San Antonio, Texas.
 Saunders, L. E., Stewartsville.
 Schisler, Edwin, St. Louis.
 Schlicht, W. F., Niangua.
 Schneiderman, Henry, Kansas City.
 Schooler, J. K., Jasper.
 Scott, J. C., Lebanon.
 Shelton, C. W., Mt. Vernon.
 Shelton, M. C., Joplin.
 Shy, D. E., Sedalia.
 Sims, John L., Joplin.
 Singer, Jacob J., St. Louis.
 Skinner, E. H., Kansas City.
 *Smith, C. Herbert, Pittsburg, Kansas.
 Smith, Clinton K., Kansas City.
 Smith, J. M., Amoret.
 Smith, J. W., Eldorado Springs.
 Smith, Wallis, Springfield.
 Snider, Sam H., Kansas City.
 Snyder, A. R., Joplin.
 Spell, F. R., Liberal.
 Spurgeon, Marion E., Red Bird.
 Stewart, J. Edgar, St. Louis.
 Stofer, D. D., Kansas City.
 Stone, Murray C., Springfield.
 Stormont, R. M., Webb City.
 Streeter, R. D., Moberly.
 Teachenor, Frank R., Kansas City.
 Thomas, A. W., Springfield.
 Thornton, J. E., Columbia.
 Tice, La Vega, Waynesville.
 Timberman, John H., Chillicothe.
 Titsworth, Guy, Sedalia.
 Traubitz, Arnold, Vanduser.
 *Trautt, L. W., Afton, Oklahoma.
 Triplett, J. S., Harrisonville.
 Twymann, E. D., Kansas City.
 Tyree, Jas. I., Joplin.
 *Upshaw, P. W., Galena, Kansas.
 Van Ravenswaay, Alex., Boonville.
 Vitt, R. S., St. Louis.
 Vogt, William H., St. Louis.
 Wade, E. E., Clever.
 Wallace, H. K., St. Joseph.
 Webb, Leslie R., Springfield.
 Webster, R. W., Carthage.

Welch, A. J., Kansas City.
 Welch, J. Franklin, Salisbury.
 Wessling, F. J., Freeburg.
 West, W. M., Monett.
 Wetzel, N. M., Jameson.
 Wilbur, H. L., Granby.
 *Wilcoxen, T. H., Bowling Green.
 Williams, J. B., Joplin.
 Williams, John R., Eldorado Springs.
 Williams, P. E., Nevada.
 Will, R. L., Neosho.
 Willson, G. C., Nevada.
 Wilson, R. P. C., Platte City.
 Wittner, Edward C., Mountain Grove.
 Woodson, C. R., St. Joseph.
 Woolsey, R. A., St. Louis.
 Wright, E. B., Peirce City.
 Wright, J. B., Trenton.

REPORT OF THE SECRETARY

This is the twentieth anniversary of the reorganization of our Association. At the 45th Annual Meeting, at St. Joseph in 1902, the plan of the American Medical Association proposing that all state associations should become integral parts of the national association, was submitted to us and discussed. The plan was approved by the various county and district societies to whom it was referred and it was adopted at the Excelsior Springs Session in 1903. By this change we became at once an organization of state wide influence with forty component societies and a numerical strength of 1128 members whereas previously we numbered some 286 members from scattering sections of the state, without cohesion, devoid of the strength required to carry out purposes nobly conceived, but held together by a slender thread of loyalty spun by men of large vision and great faith in the future of medical organization.

Dr. Jabez N. Jackson was the chairman of the committee on reorganization which recommended the adoption of the plan and he became the first chairman of the Council. The first president under the new order of affairs was Dr. Woodson Moss, of Columbia, and Dr. C. M. Nicholson, of St. Louis, was elected secretary. Upon their shoulders fell the large burden of enlisting the support and cooperation of the members to organize county societies in harmony with the plan to establish one society only in each county. The years have dimmed the enormity of this task. The state was divided into sixteen districts and a councilor appointed for each district whose duty required him to travel over wide areas in the effort to bring each county into harmony with the new plan. The original sixteen councilors were:

W. B. Sisson, Kahoka.
 Robert Haley, Brookfield.
 E. H. Miller, Liberty.
 C. H. Wallace, St. Joseph.
 L. W. Dallas, Hunnewell.
 E. S. Cave, Mexico.
 W. B. Dorsett, St. Louis.
 F. J. Lutz, St. Louis.
 B. M. Hypes, St. Louis.
 J. J. Norwine, Poplar Bluff.
 W. S. Allee, Olean.
 W. J. Ferguson, Sedalia.
 J. N. Jackson, Kansas City.
 A. R. Snyder, Joplin.
 J. E. Tefft, Springfield.
 R. L. Johnson, Rolla.

The record of our achievements during this fifth of a century should be a source of gratification to

*Visitor.

*Visitor.

every member, for every member has contributed to the successes that we have attained. Today we stand before the public a body to be reckoned with when the health interests of the people are endangered, respected by all who would conserve those interests, and feared by those who would prey upon them for selfish purposes.

This brief reminder of the beginning of our present plan of organization I thought might be appropriate at this time and I hope will serve as a stimulus to encourage a continuation of the loyalty and devotion to our organization that has animated us in the past.

Bureau of Legal Medicine

Soon after the St. Louis meeting of the American Medical Association in 1922, a Bureau of Legal Medicine was established at the headquarters in Chicago and Dr. W. C. Woodward, a former Health Commissioner of Washington, D. C., and himself a Master of Laws, was appointed executive secretary. During its short period of existence the bureau has performed considerable service for state associations, notably in Colorado during the campaign to prevent a law against vivisection. Dr. Woodward traveled to Colorado and in public addresses and writings assisted the state medical association in defeating the antivivisectionists. From this bureau I have a communication submitting two propositions referred to in the president's message.

Hygeia

After several years of agitation the American Medical Association has established a monthly magazine, called Hygeia, for circulation among physicians and laymen, especially for the purpose of publishing articles on hygiene, sanitation and preventive medicine and the achievements of medical science. It is desired that our members interest themselves in extending the circulation of this magazine among laymen. Some county societies have subscribed for large numbers of copies to be sent to lay friends. Samples and subscription blanks are available at the registration desk.

County Societies

Those county societies that are active are extending their activities beyond the field of scientific work with the agreeable result of becoming very important factors in the improvement of community life.

The St. Louis Medical Society has established a speaker's bureau and a member is assigned to speak before any gathering desiring an address on public health questions; speakers are furnished for the broad-casting station of the St. Louis Post-Dispatch, and in cooperation with the Tuberculosis Society members were assigned to lecture on this important topic before lay audiences; for two years the society has conducted a clinic for crippled children whose parents or guardians are unable to pay for medical and hospital attention.

In Kansas City the Jackson County Medical Society has been given practically full control of the treatment of inmates of the charitable institutions, thus almost wholly eliminating political influence in this work. Two years ago a friend of the Society who desired to remain unnamed, contributed \$100 to be given annually as a prize to the author of the best paper read before the society during the year. The contestants are restricted to members who have been in practice ten years or less.

Recently in St. Louis County the members of

that society prevailed upon the county court to restrict the appointment of a health officer to members of the county society. Under a new arrangement the county had recently determined to employ a full-time health officer at a salary of \$5,000.

Possibly other societies have been active along these lines which ought to be mentioned, but the facts have not come to my notice.

The bad influence of fee splitting is again becoming a source of irritation and annoyance to members and even destruction to our progress. Several years ago the Association spoke in very positive terms condemning this evil and many members abandoned the practice. I call attention to this condition for the reason that if it is permitted to continue unnoticed by the State Association you will find that many component societies will cease to be useful integrals of the organization. Wherever fee splitting prevails there follows disloyalty to our organization, disharmony and misunderstandings among the members.

We have 106 county societies comprising our organization, but of this number 9 seem to be inactive and several others quite indolent. To the councilors of the districts we must turn for the remedy. A little attention from the councilor, a little loyalty from the members, a little understanding of the important position the society can assume in the community life of the county, would rectify this condition.

Stoddard County requested severance from Butler County and on September 27, 1922, I went to Bloomfield and organized the Stoddard County Medical Society. The members in that county desired to re-establish their own society and manifested considerable anxiety for an independent organization. There were 13 members at the meeting and the prospects are good for influential work in that county. It was their representative, Mr. Tucker, who, in conjunction with Mr. Maxey, from Bates County, introduced the Medical Practice Bill in the house.

Some of the inactive societies probably should be disbanded and hyphenated with adjoining counties.

The Journal

It is with much gratification that I can report a steady growth for the Journal. Members are supporting it loyally and send their manuscripts willingly for publication. The Publication Committee feels that illustrations add much to the importance of the Journal and we have supplied these frequently. We have not felt able to furnish reprints free to authors, as the cost of paper and printing is still high. The Journal, however, is beginning to pay for its production through the advertising pages. By giving your thought and patronage to our advertisers when about to purchase supplies we can increase this proportion of income over expenses.

Twenty years ago we started with 1128 members and dues of \$2 per year. Today we have 3549 members at \$5 per year and more members have paid their dues than had done so at this time when \$3 was the annual dues.

Membership Record

Number of members, April 1, 1922.....	3511
New members.....	172
Members reinstated.....	9 181

Resigned	21
Transferred	25
Dropped	45
Died	52
	143
Increase	38

Respectfully submitted,

E. J. GOODWIN.

REPORT OF THE TREASURER

General Fund

Receipts	
April 25, Balance on hand in bank.....	\$ 3,415.92
Dues from County Societies.....	14,568.00
Sept. 26, Transferred from Sinking Fund..	2,000.00
Advertising in Journal.....	6,556.68
May 1, Interest on daily balance.....	66.00
Total	\$26,606.60

Disbursements

Transferred to the Legislative Fund.....	\$ 4,899.00
Paid on properly indorsed warrants.....	18,237.91
	\$23,136.91

May 1, 1923, Balance.....	\$ 3,469.69
---------------------------	-------------

Recapitulation

General Fund, Balance in bank.....	\$3,469.69
Defense Fund, Balance in bank.....	2,065.52
Sinking Fund, Balance in bank.....	604.57
Legislative Fund, Balance in bank.....	539.23
Total.....	\$6,679.01

Defense Fund

Receipts	
May 1, Balance.....	\$2,699.52
May 1, Interest on daily balance.....	66.00
Total.....	2,765.52

Disbursements

May 20, Dr. W. A. Atkins.....	\$ 100.00
May 26, Dr. Henry Gettys.....	100.00
July 7, Dr. W. E. Harrell.....	100.00
July 7, Dr. C. E. Fulton.....	100.00

1923	
March 28, Dr. M. E. Leusley.....	100.00
April 17, Dr. A. J. Crider.....	100.00
April 17, Dr. J. R. Bruce.....	100.00
Total.....	700.00

May 1, Balance.....	\$2065.52
---------------------	-----------

Sinking Fund

Receipts	
April 25, Balance.....	\$3,379.57
1923	
May 1, Interest on daily balance.....	45.00

Total	3,424.57
-------------	----------

1922	
Sept. 26, Transferred to General Fund....	\$2,000.00
Oct. 26, Transferred to Legislative Fund....	820.00
	\$2,820.00

1923	
May 1, Balance.....	\$ 604.57

Legislative Fund

Receipts	
Received from General Fund.....	\$4,899.00
Oct. 26, Received from Sinking Fund.....	820.00
1923	
Feb. 7, Received from Washington University	100.00
Feb. 7, Received from St. Louis University.	100.00
Feb. 7, Received from Public Health League	158.12
May 1, Interest on daily balance.....	27.00

Total	\$6,104.12
-------------	------------

Disbursements	
June 3, A. T. Dunnin, Defending mandamus suit	\$1,000.00
Aug. 10, Ross-Gould & Co.....	71.01
Sept. 13, Dr. H. E. Pearse Expense.....	13.95
13, Martin Prtg. Co.....	11.00
Oct. 20, Dr. Pearse, Expense.....	5.00
26, A. T. Dunnin, Balance due.....	2,405.70
Jan. 13, William Condon, Expense.....	100.00
Feb. 13, Dr. Pearse, telephone message.....	5.40
13, William Condon, Salary.....	200.00
16, William Condon, Salary.....	50.00
26, Madison Hotel, Expense.....	78.55
26, Parmer Chinn.....	25.50
26, Dr. Pearse, Expense.....	20.95
26, J. G. Joyce, Expense.....	250.00
Mar. 10, Dr. Pearse, Expense to Jefferson City	48.10
10, Madison Hotel.....	36.05
10, Ross-Gould & Co.....	33.77
10, Parmer-Chinn & Co.....	3.50
10, William Condon, Expense.....	75.00
14, Hughs-Stevens Prtg. Co.....	65.00
Apr. 6, William Condon, Salary.....	400.00
7, Madison Hotel.....	92.05
7, J. G. Joyce, Expense.....	384.72
16, Dr. H. E. Pearse, "	15.90
16, Dr. Hamel "	70.00
16, Dr. Francisco "	42.64
16, Dr. Shaufler "	57.50
16, Dr. Hawkins "	3.60

Total	\$5,564.89
-------------	------------

1923	
May 1, Balance on hand.....	\$ 539.23

J. FRANKLIN WELCH,
Treasurer.

Report of the Committee on Medical Education

Your committee on medical education might easily write a volume if we attempted to consider the numerous problems that medical education presents. The present status of undergraduate medical teaching, which is most satisfactory as compared with that of a few years ago, can only be highly gratifying to us all. The old days of proprietary medical education have passed, the bad being eliminated with the good.

We regret that some of our modern university medical schools fail to inculcate our old-tried ethical standards and do not accentuate the idealistic and altruistic medicine practised by the doctors of the old school. With the passing of the old school, we feel that we may have lost some good things; but some of these may be reclaimed and we would do well to voice our thought to many schools that they not only give their students more thorough training, but accentuate as the most worthy examples to follow the ideals of unselfishness and of public service held by the fathers. May we not hope that our schools will take the time and trouble to teach our students the ethics of our profession, ethics which are as true, as unchanged, and as applicable

now as in former times? We condemn the neglect of this most important phase of medical education and hope our schools will see fit to correct their deficiencies in this regard.

The practice of medicine is and ever will be peculiarly a priestly form of service. The discovery of truth and the winning of scientific distinction should only make more binding our Hippocratic oath and deepen our sense of responsibility. Medicine is a profession, the entrance into which should guard most zealously by our schools and universities. The unworthy, the incompetent, and the purely self-seeking type should not be admitted. The good students who are admitted should be required to give time and thought to acquiring those high ethical ideals most befitting for the practice of this altruistic profession. Would we proclaim that we are the Levites and that to us is committed the care of the "Ark of the Covenant"? No, not that; but we would proclaim that education, higher scientific medical education, makes us peculiarly the guardians of our profession. We do not seek to create a hierarchy in medicine; we aim to serve public health. To our care is committed the health of the nation. It is not only our task to serve the individual patient; but, what is equally important, it is our responsibility, individually and collectively, to disseminate medical knowledge and to serve the nation.

This thought brings us to the consideration of the medical education of the laity, a subject which we deem of no less importance than the education of the physician. No longer is medicine an empiric art, entrusted to the care of a semi-pagan priesthood. It is a highly developed modern science and an intricately technical art, entrusted to men who are thoroughly educated and highly trained. Let us brush away tradition and the thought handed down that this knowledge belongs exclusively to us. It is truth only with which we deal, and we need have no fear for our art. Our ideal is education and more education, both for the physician and for the public; it is "light and more light". We as medical men should be concerned with the widest possible dissemination of the truth about medicine. We believe that in our personal daily service much educational work that is valuable may be done incidentally and unostentatiously. In fact, much of our best service consists in instructing our patients and their families in modern medical truth. We should seek the general education of the laity. We should carry the torch of truth which dispels error and helps to destroy, proportionately, the "isms," the "pathies," and the "cults" of falsehood. Let us strive for the enlightenment of all the people, and in every possible legitimate way seek the propagation of medical knowledge among the laity. Let us begin in our elementary schools with visual education, teaching little children the habits of health and the means of avoiding disease. As the understanding of the children increases, let us teach these principles in our grade schools, high schools, junior colleges, and universities.

Truth, more truth, and still more truth! "And ye shall know the truth, and the truth shall make you free" is good doctrine, drawn from an authoritative source. When our young people have been taught from childhood up, the basic truths of medicine, are they likely to take up error, to accept false doctrines, or to apply to the various cults that flourish on ignorance and superstition? If a little child sees pictured a fly carrying typhoid from a latrine to a milk vessel, even if he has no further education, he is unlikely to call the faith-healer should he become infected in later life. Just the mere elementary basic truths of medicine, thoroughly disseminated among all the people, would make beneficial health administration much easier to establish. The appalling

thing is not merely that the illiterate are so ignorant of medicine, but that such a large number of the so-called *intelligencia* and educated people are so absolutely ignorant of medical truths. Man's most priceless possession, his living body, is often cared for about as intelligently as in the darkest days of superstition and ignorance.

What a peculiar atavism! And for that there is no cure but education. We must admit that there is much difficulty in teaching the truth, especially to old people. Old age is conservative. It does not readily accept new ideas and new methods. It is bound by tradition, resents the intrusion of modern ideas, and often thinks of them as "new-fangled". Here error is persistent and truth frequently unwelcome. Consequently, with old age the task is much more difficult than with the young receptive mind. *The hope of effective medical education among the laity lies with the young.* There it must be taken first—to the young people, to the child in the elementary school. We should of course value every means of teaching truth—the press, the pulpit, the platform, even private propaganda—but most valuable of all is the teaching of medical truth and medical science in our school system, from the primary grades up. In a generation or two our difficulties would be very much lessened, longevity increased, and general health and happiness manifestly bettered.

But what of the education of the physician? What about medical education as we have been accustomed to thinking of it? We are all familiar with the great advance made in the teaching of medicine in the last few years. As we have indicated before, only a few phases of it may be discussed in a limited report. Let us first declare, most emphatically, that we are not now nor ever will be willing to lower the present standards and requirements for the making of a doctor of medicine. We will never admit that a standard of service for one part of our population should be lower than that for another. Rural communities, in which many now suffer for lack of efficient medical service, have people who are just as worthy and just as essential to our public welfare as any other. These people should be cared for with scientific medical service. In our effort to serve rural communities with educated physicians the serious problem we face will not be solved by lowering educational standards. One quack is about equal to another, whether he be a chiropractor or a regular doctor who is inadequately trained and has low ideals of service.

This most serious problem of affording adequate and efficient medical service for people in the rural communities must, we feel, be solved to a great extent by a system of "State Medicine". Now, we know that to many the phrase "State Medicine" is a red flag. It is necessary for us to define "State Medicine," and to declare that we do not mean any form of contract service to the poor, or any form of so-called socialistic service, but merely the beneficent exercise of the normal function of the state in promoting the general welfare. And is there any function exercised by the state that equals education in promoting general welfare? We deem not. But does our good state, Missouri, promote welfare through the channel of medical education? How we regret to say that it is done only to a limited extent, and that she is not doing her full duty as an up-to-date commonwealth. We feel that from no technical school of higher education can the state receive greater benefits in the promotion of public welfare, in return for her investment, than from her medical school. So far, the state has refused to foster medical education to the extent necessary, and our students have been obliged to leave our state in order to complete their education, many of them,

perhaps most of them, never to return to serve us. We feel that it is a serious obligation of the state to her people that she should provide facilities for a complete medical education, thus encouraging those who take it to give service to her in return instead of going elsewhere. This is the "State Medicine" that we desire. We pray that our state may make it possible for any poor boy of ability to receive, with proper industry, this almost priceless education. We hope by state education we may avoid an aristocratic medicine, a condition which might easily come if only the wealthy could pursue medical studies. We wish only the aristocracy of consecrated medical service, and we hope it may always be possible for the student, although poor, to obtain such an education. This state duty of furnishing higher technical education, a Jeffersonian idea as firmly established as any article of the Constitution, we are sure no one will wish to deny. Our recent unavailing attempt to secure a complete course in medical education is extremely disappointing but we should be determined by this reverse to "carry on" to a successful termination.

What is necessary and what do we desire? We need, and hope to receive, a great co-ordinated system of medical teaching and medical service for the citizens of Missouri. We should first secure a completed course of education in medicine in Missouri University. As a matter of simple justice to our profession, we should fight for this end until we are successful because it is for the general welfare of the people of the state. Let us be educated in medicine through the state's educational institutions. Missouri University must complete the course in medical education for our prospective doctors. Missouri University, through a properly supported medical department, may function as can no other medical school; for in an authoritative way this department may do much to promote general education in medicine. By well known university methods of extension service, in time a great proportion of the people may be taught that medicine is not only a science, but is one that is ready to serve them. Through a close and sympathetic relationship with the doctors of the state we will be re-educated and kept abreast of medical progress. Preventive medicine, sanitation, health surveys, and all such activities should be carried on by the state university medical school; and through these activities much truth and medical knowledge will be disseminated. A state general hospital is absolutely necessary for teaching purposes. Such an institution, purely elemosynary, can serve a dual purpose. It can furnish teaching facilities for a medical school, and it can care for the state poor in a humane and enlightened way, as do our larger cities at present. We should insist on this hospital service, not only for the purpose of the education of doctors but to serve the poor people of the state, as modern enlightenment demands. No one instrument for medical service is as potent in an educational way as are hospitals. A Missouri state general hospital, in addition to serving the people of the state in a much needed way, may also become a great educational factor, not only to medical students but to the public at large.

We should also encourage the establishment of community and county hospitals, for from such centers radiates the truth about medicine. Each county general hospital may well become an educational institution in matters of health. Such institutions may be standardized and co-ordinate their work with the state general hospital and the university medical school. The medical department of the university may well undertake to teach the people by popular lectures, by bulletins, and by all the means of extension work. The state board of health, through the

county health officers, could become a most powerful medical educator if health officers were required to talk health in the district schools. This should be an important part of their duties; and if these officers were furnished with illustrated lectures still more would be accomplished. To such a program of hospitalization and to such an educational program we have committed ourselves.

Your committee, then, would ask our Missouri State Medical Association again to demand of our governor and the legislators that the State of Missouri do her duty and educate to completion her medical men. To further such a purpose and to demand also that a general hospital for the state's poor be established, something greatly needed for the care of the rural people, especially those who have no hospital care—this is our object. This project should be energetically pushed, and a special committee should be appointed to promote it.

We would endorse and encourage hospitalization, especially community and county hospitals, since they also serve in a beneficial dual capacity of health educators and modern medical service institutions.

We would earnestly request that the medical department of Missouri University establish extension service through its department of preventive medicine, as we realize how this may become a most potent educational force.

We would request that our state board of health prescribe as a most important duty of a county health officer that he teach medicine and hygiene by visual methods and otherwise in the public schools.

As an Association, and as individuals, we recommend that we exercise ourselves in teaching medical truth in every possible legitimate way, for we realize that this is not the least of our duties as medical servants.

Your committee hopes that our Association will take a firm stand and give emphatic expression of its wishes on these most important matters.

Respectfully submitted,

C. H. NEILSON, Chairman,
FRANKLIN E. MURPHY,
FRANK G. NIFONG,

The Committee.

REPORT OF THE COMMITTEE ON HOSPITALS

The year 1922-1923 has shown a continued interest in hospital improvement by our profession and has, of course, been productive of the usual number of perplexing problems. These problems are complex and must each be viewed from more than one angle, because five distinct and separate interests are at stake. These five interests are:

1. The patient: Usually the patient in our western hospitals is paying his own way, and in any case, he is the central figure. It is for the patient's welfare that all hospital medical work exists.

2. The hospital: The hospital is a business entity and must pay its bills each month. These are usually heavy—for the average western hospital a thousand dollars a day for a two-hundred bed hospital. This enormous amount of money must be paid promptly, for coal, provisions, supplies and payroll must be met without default.

3. The doctor: I know that writers on the subject place the training of interns and nurses as paramount to the doctor. However, the doctor must be in hospital surroundings that make his existence economically possible or he cannot exist. Most hospital patients arrive at the hospital through the doctor's order. His welfare must be considered.

4. The intern or the fifth year in medicine: The problem of intern teaching on the part of staff and hospital is different in a commercial, pay hospital from what it is in the teaching hospitals which have been exclusively used for the fifth year of medical teaching in the past. Experience has shown two methods of intern teaching in the pay hospital:

First, where every doctor is assigned to some intern the active staff bearing the brunt of the teaching, using the intern as first assistant in all surgical cases and as responsible assistant in all medical cases. In addition to his duties to his

chief, the intern then has his share of the work of all other physicians and surgeons who use the hospital. By this means every patient has a house doctor. This means one intern to each twenty-five to forty hospital beds and all positions filled.

Second, where only a few interns are used and assigned to a few staff men. Others do without having only such intern service as emergency demands. This plan functions poorly.

The first plan is to be commended. By it the intern has a mixed service and during his year comes in contact with everything in the practice of medicine and surgery. He learns to handle patients to the approval of themselves and their friends. The essence of intern service in a pay hospital having a mixed service is an earnest, enthusiastic intern committee and a hospital management who are heartily in sympathy with intern teaching.

5. The nurse: The nurse must get her training, her education, and the friendship and good will which are to be a basis for her future success, while doing the real nursing work of the hospital. The tendency since 1920 on the part of the group of nurses in charge of the nurses examining board seems to have tended rather toward an excess of book education and advanced standing. The public has felt that there has grown to be a neglect in the working care of the sick which in the past so endeared the nurse to the people who pay for her bedside services. The exact balance between education and training must be worked out in the future, in the case of the nurse as well as in the case of the medical student. At present the popular demand is for more of the essential every-day service of the nurse and the doctor to the ailing individual. This is especially true in the great industrial world and in the agricultural world. We must remember that in these two great divisions lie our principal population in point of need and in point of number. And our doctors and nurses must be trained accordingly. We may find that we are educating superior nurses and specialist physicians, where the basic need is to train sick-room workers for every-day, intelligent relief work. Then from this great band of trained workers the higher type will be evolved through post-graduate study in more mature years.

Financial success to the hospital, the doctor, the intern, the nurse, will come from attentive service to the great mass of patients. Such service the public is demanding today.

The following hospitals in Missouri are graded A and accredited to give the fifth year in medicine:

GENERAL HOSPITALS

Kansas City

Kansas City General Hospital (white and colored).
Research Hospital.
St. Joseph's Hospital.
St. Luke's Hospital.
St. Mary's Hospital.

St. Louis

Alexian Brothers' Hospital.
Barnes Hospital.
Jewish Hospital.
Missouri Baptist Sanitarium.
Mullanphy Hospital.
St. John's Hospital.
St. Louis City Hospital No. 1 (white).
St. Louis City Hospital No. 2 (colored).
St. Luke's Hospital.
St. Mary's Infirmary.

SPECIAL HOSPITALS

Kansas City

Children's Mercy Hospital.

St. Louis

St. Louis Children's Hospital.
Barnard Free Skin and Cancer Hospital.

HOSPITALS SUITABLE FOR INTERN TEACHING EXCEPT IN SIZE (LESS THAN 100 BEDS)

Columbia: Parker Memorial.
Jefferson City: St. Mary's Hospital.
Kansas City: Trinity Lutheran Hospital, University Hospital.
Joplin: St. John's Hospital.
Hospitals not meeting the standard, including county hospitals and private institutions in the state,

number about 150. These are not in any way under this committee's jurisdiction until they ask for rating. It is to be desired that some plan be worked out for the State Medical Association to keep a closer touch on hospitals within the state. There are a number that should have wider and better recognition and there are others that should be either improved or closed.

H. E. PEARSE, Chairman.

CALDWELL COUNTY MEDICAL SOCIETY

At a called meeting, at Kingston, of the Caldwell County Medical Society, June 8, Dr. G. S. Dowell, of Braymer, was elected president and Dr. Tinsley Brown, of Hamilton, was elected secretary. There were twelve members present. The next meeting will be held at Hamilton, on the afternoon of July 8, with a banquet following.

CLAY COUNTY MEDICAL SOCIETY

The Clay County Medical Society met at the Major Hotel in Liberty, Monday, April 30, the meeting being inaugurated by an elaborate 6 o'clock dinner, the Liberty members entertaining. Over thirty members, wives and visitors were at table. A more enthusiastic and cordial meeting has never been participated in by this society.

Dr. P. T. Bolan, of Kansas City, delivered the address of the evening, subject "The Heart." The doctor talked for over an hour, and based his sound conclusions upon a series of over 300 tabulated cases in his own practice. This lecture was pronounced by all to be one of the ablest and most instructive in our history.

Dr. L. P. Engel, of Kansas City, read a paper on "Infections of the Upper Lip," reporting numerous cases that made the text most interesting. After discussion both essayists were given a unanimous vote of thanks by the society.

A motion was made and carried that our next meeting be held at Kearney on the last Monday in June, and that members and wives would take well-filled lunch baskets and picnic at high noon in one of the beautiful groves adjacent to that historic little city. Dr. H. N. Jennett will please take notice. Our Secretary-Editor of the state association may listen in also.

Our Secretary, Dr. Gaines, not being present, the undersigned was elected pro tem.

S. R. McCracken, M. D.,
Secretary pro tem.

CLINTON COUNTY MEDICAL SOCIETY

The Clinton County Medical Society met at Lathrop on March 30. The time was consumed in the discussion of clinical subjects and transaction of business. The matter of a county hospital for Clinton County was brought up and discussed. Many expressed themselves favorably on the proposition, and it was decided unofficially to investigate the hospital at Columbia and obtain some first hand information as to the problems of such an undertaking.

The next meeting will be held in June at Cameron, at which time it is planned to have a luncheon-smoker, several papers and discussions. Every effort will be made to make the Clinton County Medical Society a live and functioning institution, and a credit to the medical profession of the state and county.

L. A. WILSON, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society held its 12th meeting for the year 1923 at the Joplin Y. M. C. A. Tuesday evening, April 10, the president, Dr. R. M. Stormont in the chair.

Members present: Drs. McGaughey, Waggoner, Hatcher, Lowdermilk, L. C. Chenoweth, Gray, Henry, Barson, Amos, Morgan, Gregg, Coombs, Stormont, E. D. James, Hoshaw, Clinton, S. H. Miller, Harttun, J. A. Chenoweth, Mallory, Dickerson, Tyree.

Dr. R. C. Lowdermilk gave a very interesting address on medical fakes and their psychic effect on patients. He exhibited a set of Perkin's tractors which had been handed to him by a descendant of Dr. Elisha Perkins, the inventor. He gave a review of the literature concerning the tractors as follows: Dr. Joseph Perkins had a son, Dr. Joseph Perkins, of Norwich, Conn., who was born in 1738. He practiced and taught pupils in Plainfield, Conn., and was Chairman of the Wyndham County Society and a delegate to his State Society.

During his lifetime animal magnetism was a subject of very general discussion and the doctor became interested in mineral magnetism, so much so that he invented and had patented in Philadelphia two small pieces of metal, shaped like tractors, one made of iron and the other of brass. These instruments were used in the treatment of diseases such as painful swellings of the joints, burns and scalds, contractions, contusions, epilepsy, eruptions, inflammations, affections of the eye, bites of insects, strangury from gonorrhea, etc. They were applied by drawing them over the skin at the affected point.

The tractors attained international fame and many prominent men throughout the world gave testimony as to their power as curative agents. In data collected later by a son of the inventor one million five hundred thousand cures were attributed to them!

Dr. Lowdermilk went on to state that Perkinism was merely one manifestation of a tendency which is older than medicine. Charms, incantations, madstones, rings and belts, Voodooism, Mesmerism, Christian Science, Kneippism, food fads, Osteopathy, Chiropractic, Abrams oscilloclast, Coueism, etc., are all justified by pragmatism and further that the mental factor in disease is too often ignored by physicians.

The Society passed resolutions commending the state board of health for their recent action in suspending the license to practice medicine of Dr. Leon Hurwitz, of Joplin, Mo.

JAMES I. TYREE, Secretary.

VERNON COUNTY MEDICAL SOCIETY

The Vernon County Medical Society held its regular meeting at Nevada, June 7. The morning was spent at State Hospital No. 3, where many clinical cases were examined. The members were entertained at luncheon in the hospital dining room by Dr. and Mrs. P. E. Williams. The afternoon session was held at the court house.

Dr. George C. Wilson gave a report of the Joplin meeting, discussing the proposed legislative program. Dr. T. B. M. Craig, our Councilor, reported that the movement to unite the Vernon and Cedar County Societies was under way and that the merger would soon take place. Dr. Howard Hill and Dr. Samuel Snider, both of Kansas City, were the guest speakers.

Dr. Hill lectured on appendicitis while Dr. Snider talked on "The Value of X-Ray in Diagnosis of Chest Conditions."

Dr. E. H. Lister of Walker was reported ill in a hospital in Fort Scott, Kansas.

Those present were: Drs. Howard Hill and Sam Snider, of Kansas City; Drs. Arthur G. Altham and Chas. W. Musser, of Metz; Drs. L. T. Dunaway and E. S. Smith, of El Dorado; Dr. G. B. Morrison, of Richards; Dr. C. L. Keithly, of Milo; Drs. I. W. Amerman, Q. M. Brown, Wm. T. Bohannon, T. B. M. Craig, E. A. Dulin, C. B. Davis, Tipton McLemore, P. E. Williams, G. C. Willson, Otto Schmidt, C. S.

Roberts, Edward Able, A. P. Smith and Joseph M. Yater, of Nevada.

J. T. HORNBACK, M.D., Secretary.

WEBSTER COUNTY MEDICAL SOCIETY

The Webster County Medical Society held its quarterly meeting at the home of Dr. W. J. Rabenau, at Fordland, on March 28. The meeting was called to order by the secretary and because of the absence of the president and vice-president Dr. W. H. Bollinger, of Seymour, was elected president pro tem. The following were present: Drs. Rabenau, Adkins, Bollinger, Schlicht, Highfill and Bruce. Dr. M. G. Roberts, of Marshfield, and Dr. E. G. Beers, of Seymour, were also present as guests. The minutes of our last meeting were read and approved.

Application for membership of Dr. E. G. Beers, of Seymour, was received and referred to the board of censors, Drs. Highfill, Rabenau and Schlicht, who reported favorably on the application which was accompanied by a certificate of good standing from Clinton County Medical Society. Dr. Beers was elected to membership in the society by a unanimous vote.

After a very fine dinner prepared by the wife of Dr. Rabenau the afternoon meeting was called to order and report of cases and their discussion took up the balance of the time until adjournment.

The society voted to hold our next meeting at Seymour, in June.

J. R. BRUCE, M.D., Secretary.

WRIGHT-DOUGLAS COUNTY MEDICAL SOCIETY

The Wright-Douglas County Medical Society met in the office of Dr. Ryan, at Norwood, at 1:30 p. m., June 7, with the following members present: R. A. Ryan, L. T. Van Noy and J. B. Little, of Norwood; R. M. Rogers and J. A. Fuson, of Mansfield; R. M. Norman, of Ava; W. E. James, E. C. Wittwer and A. C. Ames, of Mountain Grove.

The meeting was called to order by the president, R. M. Norman, and the minutes of the last meeting read and approved.

Dr. Ryan read a very instructive paper on the physical diagnosis of diseases of the chest which, while not containing anything new, did serve to call to mind many facts learned by medical students and forgotten by medical practitioners.

Dr. Van Noy read a paper on influenza which has been very prominent in the minds of most physicians for the past five years.

Dr. Rogers made a very interesting talk on "The Country Doctor" which was much appreciated by all present, as his talks always are. The papers were discussed very freely.

A bill for postage and printing of \$2.41 was allowed, and the meeting adjourned to meet in Ava, August 2.

A. C. AMES, M. D.,
Secretary.

BOOK REVIEWS

CLINICAL MEDICINE. Tuesday Clinics at the Johns Hopkins Hospital. By Lewellys F. Barker, M. D., LL.D., Professor of Medicine, Emeritus, Johns Hopkins University; Visiting physician to Johns Hopkins Hospital, Baltimore, Md. Octavo of 617 pages. Illustrated. Philadelphia and London: W. B. Saunders Company, 1922. Cloth, \$7.00 net.

This volume of clinical lectures in medicine is by one of the foremost American internists and

teachers, from one of the most representative of American medical colleges. As such it deserves a somewhat more extended notice than is usual.

Clinical lectures have recently become numerous and popular in America. It is a form of teaching and writing which has been used by some of the greatest practitioners of our profession. The clinical lectures of Trousseau were regarded by an older generation than ours as the most valuable and stimulating of books. Practically all that we have of Graves are his clinical lectures, published by the New Sydenham Society. Bright published lectures on abdominal tumours, as did also Osler. The favorite form of publication of the older surgeons, Potts, Cooper, Colles, was the clinical lecture.

In our own time the remarkable clinical talks of John B. Murphy were towards the end of his life recorded and they embalm the fine aroma of his scholarship and experience. The two books on Differential Diagnosis by Cabot, were practically clinical lectures. The Case History series of the Harvard faculty, is likewise. The Medical and Surgical Clinics of North America started as clinical lectures, although in the case of the medical clinics at least they are usually not clinical even in form but have become simply ordinary medical magazine articles. Hertzler's Clinical Surgery, a recent publication, preserves the form and advantages of clinical teaching.

The advantages of the clinical lecture over the more rigid forms of medical writing are several. First, there is the enormous helpfulness of having a concrete case to recount. One does not have to read "Sometimes these patients have anemia" (or some other symptom) which one finds in text-books. Then there is the logical method of presentation of a case: it unfolds, by way of the history, physical examination, laboratory tests, special tests, etc., just as the physician meets his case in actual practice. The reader's mind goes along with the teacher's meeting and sensing problems as he goes, and thus being in a condition to appreciate their solution by the clinician's mind. But perhaps the greatest advantage is the educational opportunity of the emphasis upon a certain symptom, syndrome or disease—an emphasis which can hardly be felt through the reading of a formal description of a disease picture. I may perhaps illustrate my meaning from this very volume of Doctor Barker's. There is one lecture on a suddenly arising thalamic syndrome. Now, for the present reviewer, the thalamic syndrome was a very vague entity until he read this lecture he knew it existed but was not quite certain what it was. But the perusal of this section of Doctor Barker's book brought it prominently to the foreground. It was not buried in an obscure paragraph in a text-book, but connected with an actual case; and thus gained in importance. It made itself worth looking into.

Auditing Doctor Barker's Clinical Medicine against this background it is decidedly worth while. No one can read the volume through without having his experience and knowledge greatly enriched.

An especially good feature is the selection of cases: they are not stereotyped or commonplace, yet they are not pedantically rare and unrelated to practice. Here are some of them: Post-operative pneumonia, Stokes-Adams syndrome and Paget's disease, hemolytic jaundice, the pregnancy kidney, spasmodic torticollis, heredo-familial cerebellar syndrome, multiple neurofibromata with compression of the cord, gout, obesity, eunuchoidism, and status lymphaticus. In passing it should be said that the chapters on nervous disorders are in our opinion the best in the book, this being a field which as a general internist Doctor Barker has made particularly his own.

The cases are discussed with great completeness and care. The recommendation of special articles in the literature is of marked value. Anyone who will read one of these lectures and follow up the references given will have a splendid working knowledge of the disease discussed.

L. C.

THE ELEMENTS OF SCIENTIFIC PSYCHOLOGY. By Knight Dunlap, Professor of Experimental Psychology in the Johns Hopkins University, Baltimore. Illustrated. St. Louis. C. V. Mosby Company, 1922. Price \$3.50.

The author states that this book "represents the general point of view on which rests the psychology which is being applied in the fields of education, industry and the arts, and which will undoubtedly be applied to medicine before long." It seems to the reviewer that Mr. Dunlap's book should hasten the time when a medical man without a knowledge of psychology will feel as ill equipped as one without training in physiology would feel at present.

The word "scientific" in the title is used in accordance with the very good analysis of scientific method on page 28. The treatment throughout the book is scientific, and while material one is accustomed to find in older books is omitted, the result is more intelligible to the biologically trained medical man.

Chapter X, on Reaction and Consciousness, and chapter XIV, on the Thinking Process, are especially valuable for the picture they give of the processes of consciousness. The author's presentation of the reaction arc hypothesis is less vivid than in his recent book, "Mysticism, Freudianism and Scientific Psychology," but perhaps is better controlled.

The psychiatrist will be interested in examining whether Mr. Dunlap has made any progress toward applying scientific methods to abnormal psychology, including Freudian psychoanalysis and its variants, all of which can hardly be said to have passed out of the descriptive. He will find only the general assertion that the scientific method is strictly applicable to all the problems of psychology, normal and abnormal.

The last chapter, on Mental Deficiency and Mental Disease, is merely a sketch for students of psychology. The author points out that the psychoneuroses are as truly mental as the psychoses, a point which should be recognized clearly by physicians and public.

E. T. G.

DISEASES OF WOMEN. By Harry Sturgeon Crossen, M.D., F.A.C.S., Clinical Professor of Gynecology, Washington University Medical School, and Gynecologist in Chief to the Barnes Hospital and Washington University Dispensary, etc. Fifth Edition, Revised and Enlarged, with 934 engravings, including one color plate. St. Louis: C. V. Mosby Company, 1922. Price \$10.00.

The new edition brings the work up to date by including the present knowledge of the internal secretory glands, the use of radium in benign and malignant growths of the organs peculiar to woman, the treatment of erosion and eversion of the cervix by linear cauterization, the nonoperative determination of the patency of the fallopian tubes according to the method of Rubin and the use of the X-ray in gynecologic diagnosis.

The arrangement of the text is excellent and the subject is treated in a logical manner. The language is clear, the choice of words admirable, although in one place he committed "the crime of splitting the infinitive," and the work is bountifully illustrated by drawings, photomicrographs and photographs. The author is not verbose and he has refrained from indulging in theory or speculation, including in the book only well known facts.

It is printed on excellent paper, is handsomely bound in cloth and the type is large and clear. There are a few typographical errors which should be corrected in subsequent editions; but as a rule they are obvious. A rather important one is on page 13, where "mensuration" is meant instead of "menstruation;" and another on page 399 where "urethrovaginal" is used for "ureterovaginal."

We predict that this edition will maintain high rank in the list of books on gynecology recommended for the use of medical students and will be a popular reference work for general practitioners and specialists.

H. E. H.

DISEASES OF THE STOMACH AND UPPER ALIMENTARY TRACT. By Anthony Bassler, M.D., F.A.C.P., Professor of Gastro-Enterology, New York Polyclinic Medical School and Hospital, and the late Fordham University Medical College; 5th Edition, revised and enlarged; illustrated with 150 half-tone and line text engravings and 93 full-page plates (with 164 figures), plain and in colors, from original photographs and drawings. Publishers, F. A. Davis Company, Philadelphia. 1922. Price, \$8.00.

This is a new and larger edition of the first volume published in 1910. The work is one which I can thoroughly recommend both to the student and practitioner of medicine. The opening chapters are devoted to detailed outline of the anatomy of the upper alimentary tract, including the mouth, pharynx, esophagus, stomach and intestines. Next the physiology and chemistry of the above are considered. Following this is a most excellent chapter on history taking. I fully agree with the author in stressing the importance of this part of the examination. The chapters on examination are especially good as far as they include the observation and experience of the author himself. The only adverse criticism I would make on these chapters is that there are too many old and worn out methods explained in detail and then cast aside with the explanation that they are not of much value. This statement being true such matter would better have been left out.

Following this, the author takes up various forms of treatment. Here again the author's own methods and experiences comprise the best part of the reading. Again much valuable space is taken up with the description of methods and forms of treatment which even the author holds in disrepute. He devotes considerable space to the electrical treatment of esophageal and gastric conditions. Most of us will find it rather hard to agree with his enthusiasm about this form of treatment. On the other hand, he seems to be very pessimistic in his estimation of the value of treatment by radium in the esophageal malignancies. It is my belief that this method of treatment has considerably more value than he is inclined to give it.

His handling of the chapters on gastric carcinoma, gastric and duodenal ulcer are in my estimation the best in the volume. However, I believe he overestimates the value of gastric and fecal analysis in making his diagnoses. The percentage of cases in which he finds occult blood in the stool seems too high. The history and X-ray findings give the most reliable information.

From a clinical standpoint it seems to me that he has gone into too minute detail in trying to differentiate in the different types of gastritis. Some of the cases that he classifies as gastritis would in all probability be put in other classifications by other clinicians.

His chapters on the functional diseases of the stomach are very nearly on a par with his chapters on malignant growths and ulcers of the stomach. His treatment is sound and rational.

Taking the book as a whole I would say again

that my only criticism is directed toward that which is common in all textbooks, that is, there is too much useless information and too much description of other men's methods, which serves to confuse rather than help the man who is trying to gain something from the reading of this subject. The author's own methods, opinions and conclusions, taken as a whole, show that he has an extremely sound clinical judgment and his book, therefore, is one to be highly recommended.

L. E. P.

THE TRUTH ABOUT MEDICINES

NEW AND NONOFFICIAL REMEDIES

DIGITAN AMPULES (for hypodermic use). Each c.c. contains 16 minims (1 c.c.) of a sterilized solution of digitan (see New and Nonofficial Remedies, 1922, p. 105), equivalent to digitan, 1½ grains (0.1 gm.). Merck and Co., New York.

DIGITAN SOLUTION (for oral use). 1 c.c. contains digitan (see New and Nonofficial Remedies, 1922, p. 105), 1½ grains (0.1 gm.). Merck and Co., New York. (*Jour. A. M. A.*, January 13, 1923, p. 106.)

BACILLUS DIPHTHEROID ALLERGEN-SQUIBB.—Prepared from the protein from *Bacillus diphtheriae*.

STAPHYLOCOCCUS CITREUS ALLERGEN-SQUIBB.—Prepared from the protein from *Staphylococcus citreus*.

BACILLUS INFLUENZAE ALLERGEN-SQUIBB.—Prepared from the protein from *Bacillus Influenzae*. For a description of the Bacterial Allergen-Squibb, see New and Nonofficial Remedies, 1922, p. 247.

Egg Yolk Globulin Allergen-Squibb.—Prepared from the purified globulin of yolks of hens' eggs.

Horse Serum Allergen-Squibb.—Prepared from protein of normal horse serum.

For a description of Food Allergens-Squibb, see New and Nonofficial Remedies, 1922, p. 241. E. R. Squibb and Sons, New York. (*Jour. A. M. A.*, January 27, 1923, p. 251.)

PROPAGANDA FOR REFORM

THE DISAPPOINTMENT OF HEXAMETHYLENAMIN.—Hexamethylenamin has joined the large and growing group of drugs of which much has been expected but which have failed to justify the hopes of their champions. The use to which hexamethylenamin is still devoted with apparent scientific justification is in preventing the growth of microorganisms in the urinary tract and in destroying them when they are present in the urine in infectious diseases, such as typhoid fever. The drug is recommended as an anti-septic in cystitis and as a prophylactic prior to operations on the urinary tract.

Its possible efficacy, however, depends on the elimination through the kidneys with a urine that remains distinctly acid in reaction; otherwise no benefit is to be expected. Hexamethylenamin has no material antiseptic value as an anti-septic in the cerebrospinal fluid during spinal meningitis. It is not a uric acid solvent. Finally, the drug has been shown to have no diuretic potency. Furthermore, hexamethylenamin is said to be liable to produce renal irritation when the dosage is large or the use protracted. (*Jour. A. M. A.*, January 6, 1923, p. 37.)

* **NEISSER-SAN-KAHN NOT ACCEPTED FOR N. N. R.**—Neisser-San-Kahn is marketed by the York Laboratories as "a new genito-urinary product" with the claim that "in Neisser-San-Kahn the genito-urinary surgeon has at his command a new salt of marked value in urethral infections." The product is said to be a definite chemical body, zinc borosalicylate.

THE JOURNAL

OF THE

Missouri State Medical Association

The Official Organ of the State Association and Affiliated County Societies
Issued Monthly under direction of the Publication Committee

Volume XX

ST. LOUIS, MO., AUGUST, 1923.

NUMBER 8

E. J. GOODWIN, M. D., EDITOR
3529 Pine St., ST. LOUIS, Mo.

PUBLICATION { W. H. BREUER, M. D., Chairman
COMMITTEE { S. P. CHILD, M. D.
M. A. BLISS, M. D.

ORIGINAL ARTICLES

CHRONIC PNEUMONITIS FOLLOWING INFLUENZA*

A. L. ANDERSON, M.D.

SPRINGFIELD, MO.

For the last three years I have been seeing occasional patients who so far as history and physical examination were concerned appeared to have tuberculosis. But on further observation, this impression was not confirmed by finding tubercle bacilli in the sputum or by the course of the complaint for which the patients consulted me.

All of these patients gave a history of having had influenza and in most of the cases, pneumonia had followed. Some of them had been having pulmonary and heart symptoms from two to three years. They complained of weakness, shortness of breath, especially on exertion, nervousness, pains in the chest and coughing, the last symptom varying in intensity. Some had only a slight morning cough associated at times with hoarseness and raising but little sputum; while others had rather a distressing cough through the day, with considerable amount of sputum. Sometimes this would be streaked with blood, but in none had the sputum ever been found positive for tubercle bacilli.

The general appearance of the patients varied. Some had maintained normal body weight, while others had lost considerably and appeared under-nourished. Some were pale, with drawn faces; others showed a tendency to a slight cyanosis more noticeable after exertion. All had a more or less anxious expression.

The temperature of most of them was normal through the greater part of the day, some showing a slight evening temperature of from 99 to 100 degrees. The pulse in all was accelerated, ranging from 90 to 120. Respiration was not noticeably increased except on exertion, and was then generally out of proportion

to what one might expect following a given amount of exercise.

Some were extremely nervous and in these there was noted a tremor of the fingers and exaggerated reflexes. The appetite in most cases was variable. A number of them were unable to sleep well, being annoyed by disturbing dreams and did not feel refreshed in the morning as they should after a night's rest. All of them seemed to be introspective, and were more or less apprehensive. They were not able to do any kind of work, mental or physical, for any length of time, so that those without means were more or less dependent on relatives or friends.

The examination of the chest on inspection showed very few abnormalities. The respiratory excursions on both sides were equal. On auscultation in some, squeaks, sibilant and sonorous rales were heard all over both lungs. In none were heard moist fine rales limited to one apex, but in quite a few the rales, sibilant and sonorous, were heard chiefly in the bases. No friction sounds were heard. There was no marked increase of voice sounds or fremitus. On percussion there was noted in most of the cases, slight dullness over the bases. In one exceptional case, which I shall later describe in full, there was dullness over both upper lobes.

The examination of the heart showed nothing abnormal except an increased rate. Most of these patients had gone the rounds consulting a number of physicians, some having tried the chiropractors, osteopaths and Christian Scientists. The diagnosis of probable tuberculosis had been made in a large per cent. of the cases.

Some of the first cases I saw impressed me as more than likely tuberculous, but after seeing more of them and watching their course I became more cautious in giving an opinion. The following case convinced me how easily one may be mistaken in diagnosis:

Mr. J. A., aged 36, farmer by occupation, consulted me in my office November 22, 1921. Height 5 ft. 7 in. Weight 125 pounds.

Family History: Father living—60 years old, in good health. Mother living and well at

*Read at the Sixty-Sixth Annual Meeting, Missouri State Medical Association, Joplin, May 8, 9, 10, 1923.

58. No history of tuberculosis, cancer, goitre or nervous diseases or diabetes mellitus.

Personal History: All diseases of childhood except scarlet fever and diphtheria. No other sickness previous to present illness. No severe injuries or operations. Present illness started September, 1921. Onset was that of a severe cold in the head which extended to his chest. Had chilly sensations, fever and general bodily soreness. A physician who treated him said it was an attack of influenza.

In a few days the soreness all left his body and he felt better, but continued to have some fever. Also had a slight cough. A few days later he began to have shortness of breath, which was aggravated by exertion. This condition had gradually grown worse until he first consulted me. At this time he could not walk over one block without marked respiratory distress. His heart action would become very rapid—130 to 140. When he came in my office I noted that the skin on his face had a cyanotic appearance, the veins in his neck were distended and throbbing rapidly. He had an anxious look and appeared to be a desperately sick man.

His chief complaint was general weakness, shortness of breath and rapid heart action which was aggravated by exercise. He also had a tight, non-productive cough. He said his appetite had been good until a week before consulting me; for the past few days he had suffered from a diarrhea. Said he was very weak and nervous and on account of his symptoms had been compelled to remain quiet most of the time for the past month.

Examination showed the following: Skin, cyanotic in appearance. Patient slightly under-nourished. Blood Pressure, S 110; D 80. Pulse 100 sitting. Temperature 100. Cranial nerves normal. Eyes, pupils equal and respond to light and accommodation, ears and nose negative, teeth showed marked pyorrhea, tonsils negative, thyroid gland not enlarged, chest well shaped, respiratory excursion equal on both sides.

There was rather marked wasting of subcutaneous fat over upper third of chest. Fremitus slightly increased over upper lobes of both lungs. Dullness over both upper lobes. Squeaks, fine sibilant and sonorous rales heard over all the lobes of both lungs. No friction sounds.

Over both upper lobes there were heard, on coughing, fine moist rales. Examination of heart was negative, except that it was too rapid.

Abdomen: liver and spleen not felt, no masses or points of tenderness noted. Rectum and prostate negative. Reflexes both superficial and deep—exaggerated. Station normal. Co-ordination good.

Laboratory Findings.—Red blood count, 4,470,000. White count, 6,700. Hemoglobin, 80 per cent.; Pmn., 63; Sm., 28 per cent.; Lm., 4 per cent.; eosinophiles, 4 per cent.; mass cells, 1 per cent. Wassermann reaction negative. Fixation test for tuberculosis, 2+. Urine, 1035; reaction acid. Albumen, a trace. Sugar, negative. A few granular casts.

The roentgenologist's report was as follows: Extensive infiltration with mottling of lung area over both sides. Areas of varying degree of decreased radiability. X-ray diagnosis, military tuberculosis.

On his general appearance, findings in his lungs, and X-ray report, I gave it as my opinion that he had pulmonary tuberculosis although I could not find tubercle bacilli in his sputum. I felt the same as did three other physicians who saw him with me, that in a short time there would be a breaking down of his lung tissue when numerous tubercle bacilli would be liberated.

I gave his family a very doleful prognosis, as I did not think he had long to live, not over six months or a year.

He went back home, about a hundred miles from my city, and I expected any week to hear of his demise. In about nine months he walked into my office feeling and looking better.

Physical examination of his lungs gave about the same findings. The X-ray report showed some clearing of both upper lobes. He stayed with me for about six weeks, during which time I gave him exposures to the ultra violet ray, chest and back, at four-day intervals. I had just installed the Alpine sun lamp and offered to give him these treatments as an experiment. He claimed after the second or third treatment that he felt much better. I do not know whether the light treatment helped him or not, but he kept improving.

He is now selling life insurance, feeling fine, is able to walk five or six miles without any fatigue, has a good appetite, is gaining in weight, has no cough or shortness of breath.

Dr. Francis H. McCruden of Boston, in the *A. M. A. Journal* of March 3rd, this year, describes cases similar to the ones which I have seen. But as yet no opportunity has been offered to study the pathology of the lungs of these cases as there have been no fatalities.

MacCallam, in his work on pathology in discussing lobar pneumonia, says: "There is very little infiltration of the lung tissue itself with the exudate. The alveolar walls, bronchial walls, and perivascular tissues remain throughout almost free from bacteria and exudate."

"In sharp contrast to this are the effects of the streptococcus and influenza bacilli, which were used by Meltzer in his experimentally produced pneumonias in animals. In them

there is far less fibrin formed and there is a greater tendency to injury of the tissue of the lung, and to its infiltration with exudate.

The same difference is recognizable in the human lungs between the cases of lobular pneumonia produced by various organisms and lobar pneumonia."

In my opinion these cases all represent an inflammatory reaction in the lung tissue, the result of an infection by the influenza bacillus and streptococcus, which results in an infiltration of an exudate around the bronchioles and in the perivascular spaces.

In some I believe this infiltration may go on to a fibrosis and become permanent, while in the favorable cases absorption takes place and the patient entirely recovers after a more or less prolonged convalescence.

The nervous symptoms in these cases were more than likely caused by an associated toxemia. Those with marked circulatory disturbances seemed to belong to the effort syndrome type. Most of these had exaggerated reflexes and were exceedingly nervous.

Among these patients I have seen ex-service men who are drawing compensation on account of supposed pulmonary tuberculosis.

In the past we failed, perhaps more than now, to recognize early cases of tuberculosis and many of us still fail. But on the other hand I am satisfied that there are a large number of patients throughout the country, some in sanitoriums, who are being treated as incipient cases of tuberculosis who are free from this disease. While it is better to treat a suspected case as if it were tuberculosis until we can determine the matter we should not shoulder the responsibility of positive diagnosis lightly, and in these patients who have had influenza we should remember the close resemblance symptomatically of a chronic pneumonitis to pulmonary tuberculosis.

716 Landers Bldg.

DISCUSSION

J. J. SINGER, M.D., St. Louis: I did not hear the early part of Dr. Anderson's paper, but the latter part was sufficient to warrant my speaking on this subject. Less than two years ago I described a case identically as he described it, in a patient who had had influenza. I should like to give a short resumé of that case, because in a rather large experience with lung cases, particularly tuberculosis, I have been struck with that some idea that there are too many cases diagnosed as tuberculosis that are not.

The patient, about twenty-two years of age, came into the clinic at the Washington University Chest Department with all the clinical signs of tuberculosis. She had at least the rales, fever, sweats, had lost forty pounds in weight, and had had influenza two or three months before coming for examination. The diagnosis of tuberculosis was very evident; in fact, so much so that in spite of not finding the tubercle bacilli, we urged her to go into the Sanatorium. We have a system in St. Louis where we are not

able to send patients directly into the tuberculosis hospital, but they must go through the general examination. We sent her to the City Hospital, and within three weeks she was working in the kitchen and dining room.

I had our secretary send for her for re-examination. I went over her and found the same signs we had found three weeks before. We examined her sputum several times and it was negative. Six months later she returned and had gained twenty pounds and the signs in the chest were certainly not as extensive, in fact, very much less; but there was still evidence on the ordinary test to warrant a diagnosis of tuberculosis. In view of the fact that tubercle bacilli were constantly negative, we decided to watch and wait. Within nine months all her signs had disappeared. She had gained back the forty pounds. She had no fever. The physical signs in the chest cleared up and the X-ray plate showed as normal as a chest could possibly be.

This led us into a more careful study of chest conditions as far as diagnosis was concerned. We came to the following conclusion: that with a case of cough and fever and with all the signs of tuberculosis, one should not make a positive diagnosis unless there are bacilli in the sputum, in cases where they have had influenza. Now, that is important. Dr. Opie, who has had extensive experience with post-mortem during the war with thousands of cases that had died following the flu, describes in his book many cases in which the gross pathology was similar to tuberculosis, but on microscopical section it was found to be purely a fibroid inflammation.

I think Dr. Anderson is to be commended in bringing up this subject. It is a terrible thing to diagnose a case of tuberculosis on indefinite factors.

J. T. HORNBACK, M.D., Nevada: He said he gave treatment with violet ray every four days. I would like to know the time of exposure?

HERMAN E. PEARSE, M.D., Kansas City: We had a time in the last war when men like Dr. Ridge did not have charge of these cases. The Public Health service had them. It was my fortune to be in charge of a United States Public Health Service at Kansas City for the ten years preceding the war, so that I fell heir to all of the cases that were accepted by the draft boards and rejected by the army boards.

I had a great many patients who were sent into Kansas City by my chief surgeon, General Blue, after they found out they could send them there and get a positive opinion in a few days, one way or the other.

I bring this up because we had so many of these cases, and I was fortunate in securing the services of some of the rest of us who stayed at home—too old to go to the front. We organized an examining staff and had the Research Hospital, and carried them down the line carefully. I was struck with the discrepancies of the reports I received sometimes from the examination of these cases who came in with loss of weight, some cough, a history of crepititation, and a diagnosis of tuberculosis for which they had been turned over by the army to the Public Health Service and examined and re-examined, and finally sent to Kansas City for final testing as to whether or not they should go to the great sanatoriums in New Mexico and Arizona.

I was very much interested in the paper, and on account of the experience we had with a lot of those cases, I want to emphasize what Dr. Anderson and Dr. Singer had said. Do not hang about those people's necks a diagnosis of tuberculosis. These men would come to Kansas City drooping. They were down and damned, and they knew it. Yet, as Dr. Anderson pointed out, a lot of them had no tuberculosis and finally got well.

Of those in whom we were unable to determine the

absence of tuberculosis, we gave them the benefit of the doubt and told them they had inflammation of the lungs, and sent them to Fort Stanton or some of those places at government expense, and let them get well there.

I think it is a good thing to give these people a chance for hope at least until, as Dr. Anderson has said, we have the diagnosis absolutely confirmed.

DR. ANDERSON, closing: I thank you for your attention and kindness in discussing my paper. As to the use of the ultra violet ray in these cases, I will say that I have not had sufficient experience with it in this condition to warrant me in recommending this as being of any special value. In this case the first exposure to the light was made for three minutes at a distance of thirty inches; the time of exposure was increased and the distance decreased each following treatment so that the last few treatments were given for thirty minutes, fifteen each, to front and back of thorax at a distance of fifteen inches.

The cases described by Dr. Singer are very interesting. I have not seen any of these in my private practice but saw quite a few at Camp Sevier during the war. Some of these developed meningitis secondary to the foci of infection in the lungs. Autopsies on the cases that died there following influenza and pneumonia, some of them month after the primary infection, showed multiple collection of pus in the lungs ranging from the size of a pea to that of a walnut.

There is no special treatment for the condition I have tried to describe. The three elements of most value are rest, good food and time.

THE MOBILIZATION OF ANKYLOSED JOINTS BY OPERATION*

FRANK D. DICKSON, M. D.

KANSAS CITY, Mo.

The problem of restoring motion to stiff or ankylosed joints is one which has engaged the attention of surgeons for many years, probably centuries. When one considers the grave handicap stiffness in an important joint is to the individual, this is not surprising. Many and varied have been the procedures proposed for the correction of this disabling and often unsightly condition. Manipulation, the use of force in the form of screw braces, the injection of various oily substances into the joint, the surgical reconstruction of new joints and other methods too numerous to mention have all played a part in the attempt to restore motion successfully to such stiff joints. It is the intention at this time to consider but one phase of this subject, which is the restoration of motion by operation.

The operation for restoring motion to a stiff or ankylosed joint and known as arthroplasty, has passed through the experimental stage and may be said to be a firmly established procedure. Until recently the operation has enjoyed an undeserved reputation for uncertainty of results, largely we believe, because

its technique has not been systematized and the personal equation of the operator has entered too greatly into the manner in which it has been done. Once a standard method of procedure is adopted, better and more uniform results may be looked for.

Within the past ten years, through the work of Murphy, Baer, Davis, Putti of Bologna and others, a technique has gradually been evolved which, in the hands of operators experienced in such work, insures a successful outcome in the majority of cases with the result that at the present time it may be stated, I believe, that if cases are properly selected and the operation correctly done, we may expect ninety per cent of successes in arthroplasty of the jaw and elbow, seventy to eighty per cent, in the knee, and sixty to seventy per cent, in the hip. These percentages will bear comparison with those of any other reconstruction operation in surgery and certainly justify its use.

Although most of you are probably familiar with the operation of arthroplasty, we might briefly review the scheme or plan upon which it is based. Since we are dealing with an articulation in which all the joint structures have been destroyed and the bones composing it fused together, the problem is one of reconstructing a new joint.

The procedure for accomplishing this in general, is as follows:

First—The joint to be operated upon is exposed by a proper incision.

Second—Sufficient bone is removed from the site of the old joint to permit free motion.

Third—A flap of material is interposed between the bone ends to prevent their growing together again.

Fourth—The new joint is so handled, post-operatively, as to secure a useful degree of movement.

Such, in brief, is the scheme of the operation. There are, however, factors which have a very important, even vital influence upon the result, and it is these I wish to discuss briefly.

The cardinal points for consideration when an arthroplasty is contemplated are:

First—The selection of cases suitable for operation.

Second—The method by which the joint can best be exposed.

Third—The amount of bone to be removed.

Fourth—The kind of material to be interposed between the bone ends.

Fifth—The after-treatment.

In selecting cases suitable for arthroplasty too much care cannot be exercised. The selection should be based on general and local considerations. From the general view point,

*Read at the sixty-sixth annual meeting, Missouri State Medical Association, Joplin, May 8, 9, 10, 1923.

only cases should be chosen which are in a position to go through with the entire procedure, that is, a serious operation and a trying and prolonged after-treatment. This rules out the old, the debilitated and those whose stamina, mental and physical, would make one doubtful as to their ability to bear the strain of operation and after-treatment. Economic conditions should also be taken into consideration. The prolonged convalescence to which these cases must look forward, often makes it unwise to attempt arthroplasty where the means do not permit of sufficient time being given for satisfactory after-treatment.

As local factors influencing selection, three contraindications to arthroplasty should be mentioned. These are: active disease in a joint; tuberculous disease in a joint; and solid bony ankylosis which has existed for years. It is evident that to operate on a joint in which disease is still active is but to court disaster. In tuberculous disease, ankylosis is the best protection against a relighting up of the process and it should not be broken up. If it is desirable to secure motion in such a joint, it would seem best where conditions



Fig. 2a. X-ray of a joint with fibrous ankylosis upon which an arthroplasty should be attempted.

permit to produce a pseudarthrosis in the neighborhood of the joint rather than disturb the ankylosis. In cases of complete bony ankylosis of years' standing where the two bones have become one, often with a continuous medullary cavity and all trace of joint structure has disappeared, our experience leads us to believe that arthroplasty should not be done. We have felt that the absolute disappearance of the capsular and ligamentous structures in such joints and the difficulty of building up muscular control of the joint after years of disuse, might be two factors in the failure in such cases.

In exposing the joint, an incision should be used which affords a free, unobstructed field for remodeling the bone surfaces and for placing the interposing flap. Small incisions are unsatisfactory and unnecessary. For the hip-joint, the Smith-Peterson incision has been the most satisfactory. In the knee, an incision described by Putti of Bologna, which is identical with that of Bennett for gives a very good exposure and we are using it routinely. The incision is in the form of an inverted U, running around the upper margin of the patella; from its centre, a straight incision extends upward along the tendon of the quadriceps extensor muscle. To expose the joint, the quadriceps tendon is divided by a Z-shaped incision, the insertion of the vasti cut and the patella turned down.



Fig. 1. The X-ray of a joint showing complete bony ankylosis. An arthroplasty should never be attempted on this type of joint.

In the elbow, the ankle and the jaw, an incision which seems to best fit the case should be selected.

In removing bone, enough should be taken away to allow free unobstructed motion. In the hip, a half or more of the head of the femur should be sacrificed. For the knee, we remove sufficient bone to leave at least a three-quarter inch space between the femur and tibia with the knee extended and ready for the placing of the flap. A like interval is allowed in the ankle. We have had no joints in which instability has resulted from removing too much bone. When remodeling the bone-ends, care should be exercised to preserve the capsule and ligaments as far as possible. This can be done if the exposure is properly made. Clean removal of bone and careful smoothing of the fresh ends with a shoemaker's rasp or by other means is important.

There is still considerable controversy going on as to whether it is necessary to interpose a flap between the denuded bone ends. We do not feel that any conclusive evidence has yet been presented to prove that such flaps are unnecessary, and we continue to use them. We prefer a flap made by taking a free transplant of fascia lata to one composed of foreign material as Baer's chromicized pig's bladder. In our cases there has been less reaction, local and general with fascia lata and earlier movement has been possible. Pedunculated flaps (preferred by Murphy) we have not used for years. This method has two great disadvantages, the difficulty of getting suitable material in some cases, and the long period of immobilization which is necessary when such flaps are used.

Two methods of after-treatment are available; one is immobilization in plaster for three or four weeks, followed by passive and active movements; the other is immobilization by traction and the early institution of motion. The latter has been the more satisfactory to us. Its advantages are that motion may be started early, the bone surfaces are held from coming in contact, there is less pressure on the interposed flap, and contraction of the periarticular structures is prevented, which is a distinct advantage in securing a good range of motion.

Passive motion is started by the sixth or seventh day, active motion is encouraged as soon as the stitches are removed, and insisted upon by the end of the second or beginning of the third week. In four weeks, we have the patient up on crutches if the hip, knee or ankle has been operated upon. Traction of a few pounds is used at night, and at intervals during the day for two months, except in the ankle cases. Weight bearing is en-

couraged early and every effort made to have the patient use the joint in as normal a manner as possible and as soon as possible.

It should be stated that massage and muscle training are used daily from the time the stitches are out until the joint is being freely used. Careful muscle training after arthroplasty is, we believe, one of the vital factors in success. It is active movement of the joint which prevents recurrence of ankylosis and determines the usefulness of the joint. Passive motion can in no way take its place. The most painstaking care then must be used from the start to build up and re-educate the muscles controlling joint action. This is best done by a trained assistant under the direct supervision of the operator. Unless this can be done, it is advisable not to attempt the operation. The co-operation of the patient is absolutely essential here and in selecting cases for arthroplasty one should always bear in mind the trying period which must be gone through at this time. Finally, as regards after-treatment, no case should be permitted to go from under supervision until sufficient voluntary motion has been secured to insure the joint being used.

In discussing the preceding cardinal points, we have mentioned only the salient facts as we see them. As regards after-treatment, however, we feel that we cannot too strongly emphasize its importance. We believe that upon the after-treatment depends the success or failure of the result more than upon any other single factor in the procedure.

The opinions regarding arthroplasty expressed in this paper are based upon histories of fifteen cases which have been operated upon within the last three years, and there has been no selection of cases made. The reason for confining our report to these cases is that they have been under supervision for a sufficient length of time to carry out all the treatment to a degree which enabled us to draw conclusions. Old cases which had not been thoroughly followed, examined or at least heard from within the last six months were discarded, as we felt that conclusions drawn from them would be valueless. The results in tabulated form, are as follows:

	Number of Cases	Results		
		Good	Fair	Bad
Jaw	2	1	1	0
Wrist	1	1	0	0
Hip	5	3	1	1
Knee	4	3	1	0
Ankle	3	1	1	1
Total	15	9	4	2

In conclusion; if cases are carefully selected, if the operation is carefully done, and if the after-treatment is properly carried out, the

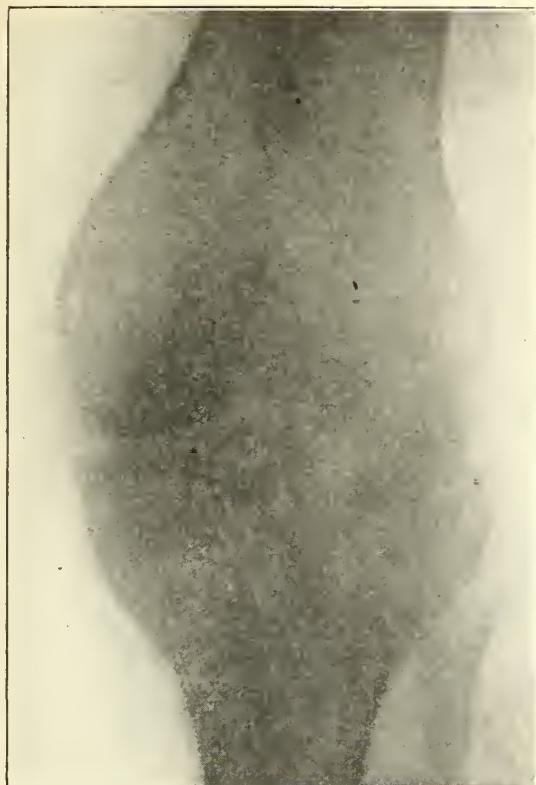


Fig. 3a. X-ray of a joint with fibrous and bony ankylosis.

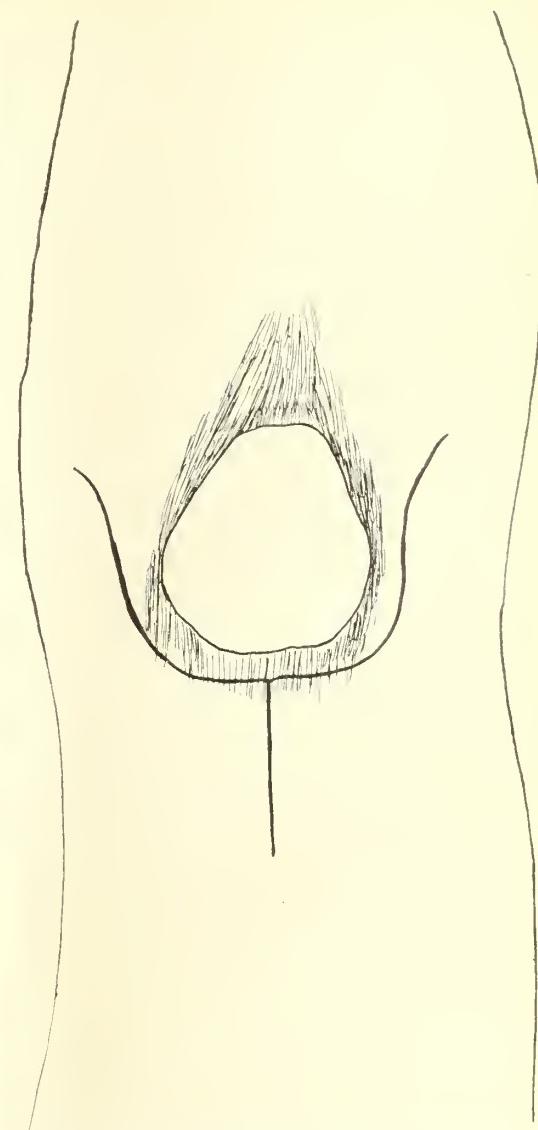


Fig. 4a, 4b, 4c. Diagrams showing the three most important steps in doing an arthroplasty on the knee.

Fig. 4a. The skin incision (after Putti).

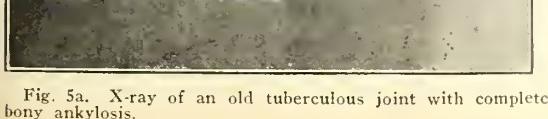
results of the operative mobilization of ankylosed joints are satisfactory. Not all are the brilliant successes we would wish them to be, but if we bear in mind that failure entails no great loss to the patient, that he has everything to gain and nothing to lose, I am sure it will be conceded that the operation is well worth a trial when an important joint is involved and the individual thereby is handicapped.

403 Waldheim Bldg.

DISCUSSION

DR. J. EDGAR STEWART, St. Louis: It seems to me that of the cardinal factors mentioned by Dr. Dickson when an operation of this sort is contemplated, the first and last are the most important; that is, the selection of cases and the after treatment. The one calling for the exercise of most surgical judgment is the first one.

Fig. 5a. X-ray of an old tuberculous joint with complete bony ankylosis.



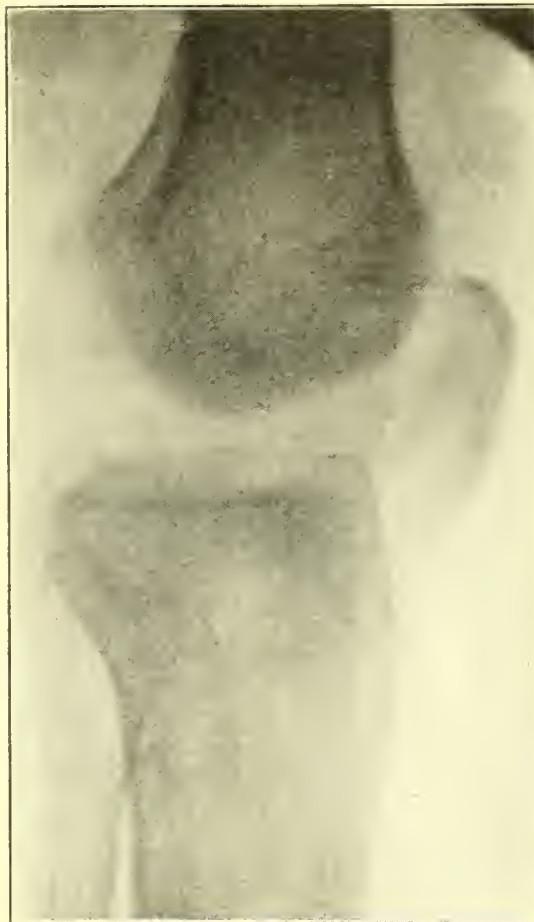


Fig. 2b. X-ray of this joint after an arthroplasty.



Fig. 3b. X-ray of this joint after an arthroplasty.

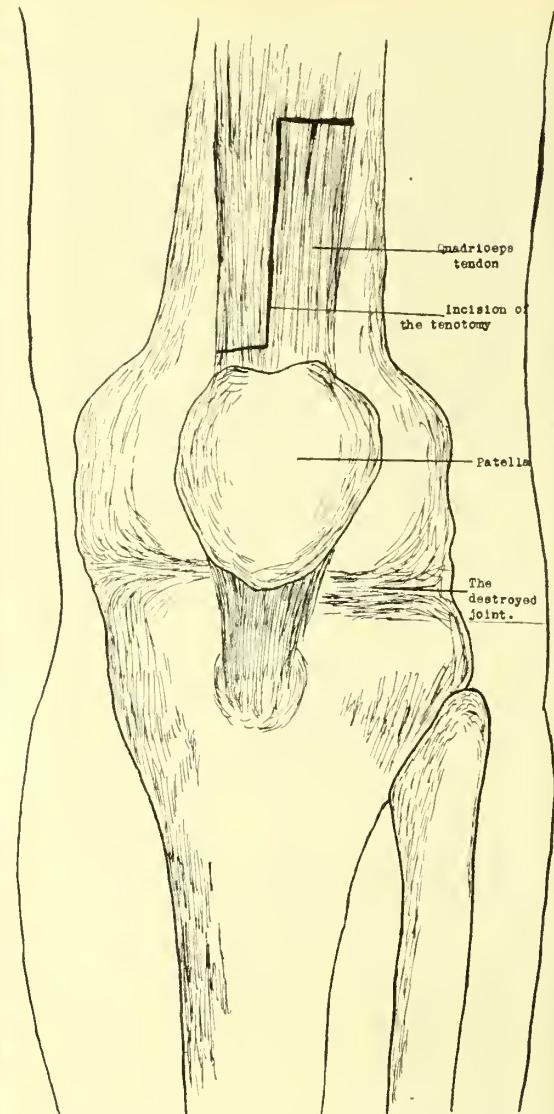


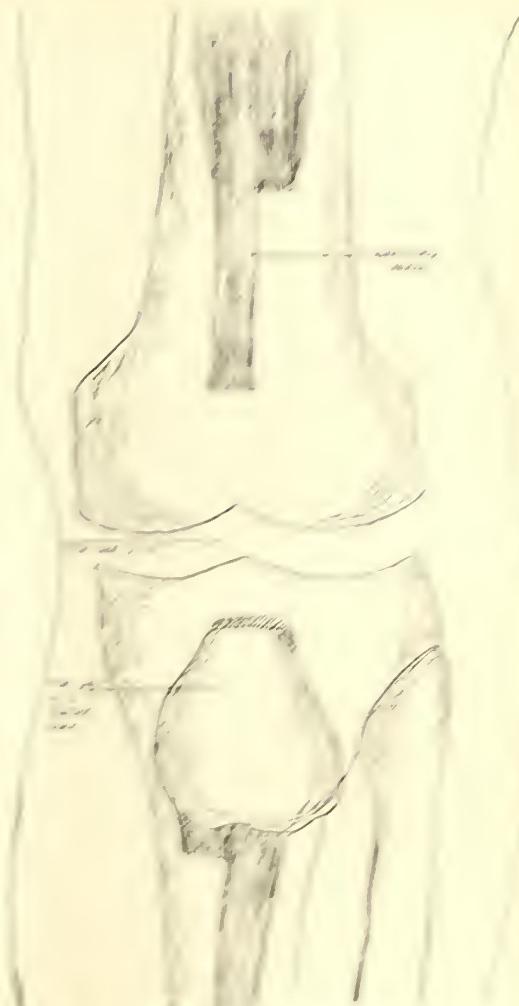
Fig. 4b. Showing the exposed joint and the outline of the tenotomy of the quadriceps tendon allowing the patella to be turned down. Note the destruction of the joint surfaces.

I have not been in favor of arthroplasty as a general thing, but Dr. Dickson's pictures are very impressive.

I should say in this first important factor he must have exercised the rarest judgment. I should like to have him take up in closing a little more in detail what he considers a contraindication to arthroplasty. In cases of arthritis that are not septic—cases that have an ankylosis that is partly fibrosed—when he would consider doing an arthroplasty; and in cases that are septic, when he would consider arthroplasty safe—how long after it has quieted down?

DR. ROLAND HILL, St. Louis: I would like to ask Dr. Dickson whether in these cases with so much traumatism he encounters infection more frequently than in ordinary cases; and if he has had any mortality?

DR. H. K. COWEN, Ash Grove: I had a patient seventy years old who had complete separation of the tibio-astragalus joint. When I found him, the



SKETCH OF DECORATIVE VASE
BASINGSTOKE MUSEUM

Unfortunately, this is true if a physician does not have a definite plan for handling children and does not get the early co-operation of the parents as well as the patient. Undoubtedly the ideal place for treating surgical lesions in children is in a hospital, but only a relatively small number of physicians are fortunate enough to have a hospital close at hand. If the general routine of a hospital can be transferred to the home, the treatment of conditions almost hopeless is made fairly easy.

The principles of surgery are often overlooked in their application to practical problems. The physician becomes so confused by the complication of apparatus used in treating surgical lesions that he often overlooks the principles underlying such treatment. The treatment of fractured femurs in the recent war was an excellent example in the complexity of apparatus. Every organization apparently had its own idea as to how a femur should be treated. The best results were obtained in two hospitals using entirely different methods. One used the Thomas splint and the other the original Hogden splint. All that was accomplished in either of the cases was a convenient method of making traction on a fractured femur.

Every year brings its quota of children who have been suffering with multiple arthritis who have been brought to the hospital for the correction of the subsequent deformity. Not infrequently the straightening out of a twisted limb consumes far more time than was given to the actual disease itself. Undoubtedly, if simple splints maintaining the correct position of the limbs had been used throughout, on recovery the patient would have been fairly fit to get up and go about in his usual way.

The two surgical principles to guide us in the splinting of such cases is; first, the maintaining of the extremity in the position that will be most useful following a complete recovery; second, the maintaining of the limb in such position that it will function best if there is an ankylosis. For example, the feet must be maintained in the position of right angle to the leg. The knee must be kept straight either by the Buck's extension or the board splint. The thigh must be kept in abduction and the leg slightly internally rotated, an important point not to be overlooked. The elbow bent at better than a right angle. The wrist prevented from dropping by the cock-up splint. The fingers held straight by splinting. Arms at the shoulder well abducted from the sides of the body. Otherwise, you will see the patient with multiple acute arthritis fixed at every deforming angle. This seems to be a drastic treatment but even then some deformity will take place, yet when the acute process is over and the correction has to be

started one will find that prevention has already accomplished a great deal and that the problem is not so difficult.

The monarticular type or the acute type to which children are so susceptible is easier to treat but demands just as energetic methods as that of the multiple rheumatic. In a case of acute arthritis of the hip joint, the first thing to take into consideration, even before an operation is decided upon, is the type of apparatus that will be necessary to maintain a correct position. A surgical principle in arthritis of the hip joint is that the thigh should be in abduction with slight internal rotation. This position may be maintained in an older child by making traction with the ordinary Buck's extension from a corner of the bed, the leg supported in sand bags. But unless the child co-operates very well you will find that he adjusts his body to the angle of the pull and the abduction is lost. In fact, this is one of the hardest positions to maintain in an ordinary bed even in an adult. To assure success it is necessary not only to abduct the leg from the body and maintain traction with the Buck's extension but it is advisable to place the child on a frame made of gas pipes. This is described in every text book of general as well as orthopedic surgery as a Bradford frame. If gas pipes are not available, this frame can be made of pieces of wood—long strips of wood just a little wider than the patient's body—extended a few inches above and below the feet and head. The entire frame to be covered with canvas tightly stretched and tacked to the wooden frame. But in case the gas pipes are used the cover is to be fastened securely to the pipes by sewing. By placing the child on its back on this frame and by fastening the body about the hips and below the arm pits with a sheet, the body is fixed in a rigid position and the abduction of the thigh can be definitely maintained throughout the twenty-four hours of the day with the Buck's extension. Again the slight internal rotation is important because if an ankylosis takes place in abduction with external rotation, the patient will be required to walk upon the heel with the foot thrown out to the side, but if there is a slight internal rotation the flexible tarso-metatarsal joints will permit the utilizing of the whole of the foot in walking. In the neglected case of hip joint disease when only drainage is done or the abscess is allowed to rupture spontaneously, there is early acquired adduction deformity and in the extreme case the affected leg has actually been known to cross the other member. Of course, this is an extreme example but even a slight degree of abduction at the hip will cause a deformity and difficulty in walking that can only be overcome by a marked tilting of the pelvis with

a subsequent scoliosis or a resulting operative procedure to correct the deformity.

We probably see more marked deformity as a result of incorrect splinting of the elbow injuries and lesions about the elbow joint than in any other joints of the upper extremity. The principle laid down by Sir Robert Jones of Liverpool that injuries at the elbow joint should be fixed in a position at a little less than a right angle has been generally overlooked. In some instances this is evidently due to lack of knowledge of this surgical principle, and in a great many cases it is due to the fact that in the fixation or immobilization, the forearm is unconsciously allowed to drop below the prescribed right angle. It is far easier to develop an extension of the arm that has been kept in acute flexion than it is to bring about a flexion where the position of extension has been maintained over a long period of time. Very frequently cases are seen of supra-condylar fracture of the humerus or separation of the lower humeral epiphysis in which the diagnosis of dislocation had been made. It may be that reduction has been performed and the arm splinted at a right angle rather than at the prescribed Jones position of the acute flexion and a recurrence of the deformity has taken place within the splint.

Probably the most grossly neglected principle in injuries about the elbow joint is that of maintaining supination of the forearm. The position is not hard to get if taken early. If the hand is allowed to drop into pronation and remain so for a couple of weeks during the course of an acute arthritis or a traumatic injury, it is almost impossible to correct the deformity without considerable pain to the patient. For this position to be properly maintained it is almost necessary to have the splint not only support the forearm but extend well up the arm and be thoroughly fixed to the arm as well as forearm and hand.

In injuries and in arthritis of the shoulder joint our modern methods of extension in abduction have frequently done away with deformity and loss of function. In fractures about the shoulder joint in children unless the fracture is not complete or unless there is a firm impaction in a good position, we rarely ever splint the arm down at the side of the body. The two fractures that occur in children are the fracture through the upper neck of the humerus and the upper epiphyseal separation. If abduction and traction are not used the final result generally is a limitation of motion. Probably the most comfortable fixation for a child is direct traction on the arm over the side of the bed with the Buck's extension, weight and pulley, a counter traction to be maintained on the body with the sheet fixed to the opposite side of the bed and sur-

rounding the chest. This simple procedure aided possibly by a little manipulation under anaesthesia will correct any malformation and bring the proximal fragment in proper relation with the movable distal fragment. To give the child more freedom in moving about in the bed an ideal apparatus is the Thomas arm splint suspended to an overhead frame balanced by a system of weights connected by ropes with overhead pulleys. By this method the child is able to raise and lower himself in bed at will and the traction is maintained by the Thomas splint. Of course this method confines the child to the bed and that is a great drawback. This can be overcome by using a plaster abduction splint, or what is more recently known as the airplane splint, consisting of a complete body cast which also includes the fractured arm and hand. I call attention to this particular fixation although it is an old one because it is not used as much as it should be in children. Contrary to the general impression that children do not do well in this splint, we have found that they have been most comfortable and that they can be discharged from the hospital and are able to make trips to and from the clinic. They are able to move about, to sit in comfort as well as to sleep in comparative comfort at night. There is very little chance of the fragment slipping in the splint, and when the splint is removed it is a very easy matter to bring the arm back to the side.

An arthritis of the shoulder should always be treated in abduction and slight external rotation in the event that there should be an ankylosis resulting. This position is easily maintained by the simple Buck's extension and the above mentioned Thomas splint suspended by pulleys. An ankylosis of the arm at the side of the body following arthritis where abduction has not been used gives rise to the most disabling deformity of the upper extremities. It can only be corrected by a radical operation on the shoulder joint and even then the possibility of success is limited, whereas an ankylosis in abduction permits of a free range of motion and abduction through the action of the trapezius muscle.

In acute arthritis of the maxillary joint it is rather doubtful as to whether fixation is of benefit. There is a constant tendency no matter what method is used for the lower jaw to swing to the side of the arthritis and remain fixed in that position. A number of years ago, Dr. John B. Murphy, of Chicago, recommended the introduction of the wooden bite between the teeth throughout the period of the acute arthritis, thus allowing the ankylosis to take place with a degree of separation of the teeth, making it easier for cleansing the mouth and eating. Dr. Blair, of St. Louis, is not

certain whether or not this latter procedure is practical. In his experience, the bite has been rather hard to keep in position and the method has not worked with success in his hands.

BURNS

In our text books on the subject of treatment of burns too much space is allotted to the discussion of the various remedies to be employed and far too little space is allotted to the most important point in the entire treatment, that is, the prevention of subsequent deformities. It is interesting to note, following a number of cases of burns in several institutions, that so far as the healing of the burn is concerned, the end result is about the same although different remedies are used in each place. The prevention of contracting deformities follows exactly the same principles as those outlined for the treatment of acute injuries and arthritis. It is not difficult to prevent a foot-drop caused by contraction of the scar about the ankle if the leg is maintained on a right angle splint. In order to make the splint comfortable it should be well padded and covered with vaseline gauze. Even when the entire skin of an extremity is destroyed such a splint can be applied and removed daily for the dressing so that by the time healing has taken place the alignment of the limb will be correct. In burns about the upper extremity, it is comparatively easy to maintain the arms in position of abduction and the elbow at a right angle. It is exceedingly important to give very close attention to the position of the hand and wrist. The patient is inclined when left alone to rest the arms across the lower chest, allowing the hands to flex acutely at the wrist. Also the fingers are inclined to be drawn to the side; in severe cases when healing is completed the fingers are found to be grown solidly together, therefore, each day it is necessary to separate the fingers with vaseline gauze, to straighten the hand on a splint covered with vaseline and to secure loosely with a bandage. If an arm is allowed to remain at the side of the body until a contracture is formed in the axilla, it is impossible by manipulation or massage to stretch the scar and draw the arm out from the side. It is necessary to perform an extensive operation which shows the axilla filled with dense, thick adhesions and scar tissue often well down into the larger vessels and brachial plexus. There is probably no way of preventing the scar contraction under the chin which in extreme cases causes an evulsion of the entire lower lip. It would be well worth the trial to flex the head back over a pillow.

VOLKMANN'S ISCHEMIC PARALYSIS OR CONTRACTURE

There have been more cases of Volkmann's in the children's than in the adult clinic. Too much time cannot be given to stressing the point that tight fixation should never be used where there has been an injury. We find Volkmann's paralysis following an application of a simple type of roller bandage, coaptation splint for Colles' fracture, plaster cast, and even the application of a Buck's extension for traction.

There are cases on record where Volkmann's paralysis has followed less than 12 hours of pressure. The greatest misleading symptom associated with Volkmann's paralysis is that after the damage is done there is a relief from pain. No matter what type of apparatus is used, if it causes pain and produces swelling of the extremity, it should be opened and the constriction relieved. Too frequently, we find that our patient has suffered throughout the entire night and we are fortunate, indeed, if we escape a Volkmann contracture.

During the entire course of a student's career the danger of a Volkmann contracture should constantly be held before him. The solution of the problem so far has not been solved. There are any number of operations devised, all being so radically different, that practically every possible phase has been attacked, but so far no method has been devised that can be successfully applied to the cure of Volkmann's paralysis.

University Club Bldg.

DISCUSSION

DR. FRANK G. NIFONG, Columbia: I am pleased with this paper. It is a very broad subject, but there are certain surgical principles in the treatment of joints and fractured bones and the soft parts that we need to bear constantly in mind. The general surgeon may as well have a correct point of view as the orthopedist if he has these surgical principles thoroughly fixed in mind. Too often in our old fracture surgery the surgeon has been content to "set" the bone. We still hear it said frequently that the doctor came "and set the bone." That sometimes was the extent of his ministrations—setting and putting on a splint of plaster of paris or a Buck's extension.

I want to stress the necessity for looking after the soft parts when we have fracture or a joint condition. Always there is more or less injury to muscle, fascia, nerves, and vessels when we have a fracture and these tissues should have as careful consideration as the bone if we hope to get good functional results. And good functional results should be our aim as much as the union of the fracture. We may not have good functional results unless we consider vessel, nerve, and muscle as well. We must see that nature has a chance to make repairs unhampered. The principle of fixation must not be minimized. The principle of extension in long bones cannot be too much accented.

I wish to make a plea for the open methods of treatment. Let us not have so much plaster casts

covering entirely the injured or diseased part. Let us have means of fixation and extension which allows the eye to see and the finger to feel the injured or diseased part. This is permitted us if we use the open wire cradle type of splint.

Now in regard to the principle of extension, take a long bone such as the femur. We rarely need lateral splinting or any padding if proper extension is made in an open splint. Why? Remember our anatomy as to the construction of the great fascia lata and the intermuscular septa. Extending this great sheath that is attached to the linea aspera and the bone and soft parts all fall back into normal position. It only needs gentle, continuous, consistent extension and in a few hours all spasm of muscle and deformity are eliminated.

In the open wire splint we have always under our eyes the arm or the thigh and can note conditions that would otherwise be covered and damage done before we would know it. Also the care that must be given can only be given in the open splint. A burn or wound or any injury to the soft tissues can be cared for and later the necessary bathing and massage can be done.

In applying splints to long bones a physiologic question should be considered. Limbs should be put in splints at position of what might be called physiologic flexion. We are born flexed. At rest we assume slight flexion at knees and elbows. Note how quickly painful it becomes if you stand extremely stiff or straight or if you extend your arm fully. This physiologic flexion must be considered in splinting with any method. Much myositis and after trouble will be avoided if this is remembered. A flexion of about fifteen or twenty degrees gives perfect muscular rest at the knees and elbows.

Many other things I might mention but the time allotted will not permit.

DR. J. EDGAR STEWART, M. D., St. Louis: I think these points in regard to the fixation of fractures have been occasionally covered by general surgeons, but where the extremities are affected with arthritis or poliomyelitis—any of those conditions that may leave a contraction of the muscles or ankylosis of joints—the tendency of the physician is not to give them as much attention as he would to fractures. It seems to me it is just as important—perhaps more so. I do not know of anything that is more harrowing to my professional feelings than to go through a ward and see a child or an adult lying in bed with arthritis, with a leg drawn up or the toes hanging down, not only without sufficient extension, but without any regard for what the ultimate function is going to be when he does recover from his disease.

I think Dr. Rainey's paper is a very timely one, and I am particularly glad to see it come from a general surgeon.

DR. CHAS. E. HYNDMAN, St. Louis: I want to say something in behalf of the children. Now, children are the best patients we have from every standpoint. They are the most easily handled. Their tissues respond most easily. It is not always a question of skill in handling children: it is common sense. In this particular class of cases, if there is one place where simple apparatus is necessary it is in the handling of surgical conditions in children. Complex appliances are out of place with children, as a rule. Children are perhaps the most neglected and abused of all our patients. There are more undiagnosed fractures and joint troubles in children than in any other decade. Very severe pain following an accident should be interpreted as a fracture. You will all recall three or four cases of children who have come to you months after the injury with

a deformed arm, but at the time the parents did not know they were badly hurt.

I do not have any criticism or anything to offer against Dr. Rainey's paper, but he spoke of arthritis in burns, which is common among children. In the first place, a moderate degree of extension in all those conditions of the joints brings relief and prevents contraction. In burns, especially, it is necessary. You find a number of times where you cannot extend it because the entire lower limb is burned. There are means of controlling the granulation tissue with the use of surgical adhesive plaster that will prevent the contraction to a great degree.

For the most part, children under the age of ten or twelve are handled most successfully, I think, by overhead extension, which is the simplest possible means for fracture of the lower limb, as Dr. Rainey has said. For the abduction of the upper limb, where it is necessary to put on a plaster cast, I do not agree with Dr. Rainey. I think it should be extended to allow free movement of those fingers, and you will have better results. It does not make any difference whether you put on a light cast. Allow the free motion.

The presence of pain means you have not your appliance adjusted properly and it should be readjusted immediately. People have no pain with properly adjusted fractures.

The idea of pressure is wrong in the treatment of fractures. You can not readjust the position of the bones by placing a gauze pad here and leaving it out there. You only contuse and devitalize your soft tissue. You must depend on the proper approximation of your fracture and then hold it there. You see more paralyses and deformities following the use of pressure pads, in children especially, and older people as well, than by proper, simple splints, properly adjusted.

DR. C. B. FRANCISCO, Kansas City: I want to emphasize about the management of children. I have long since come to the conclusion that I can believe what a child tells me, but not what adults tell me. A child will not complain without cause. If he is complaining, it means there is some cause for it. It is important to listen to the complaint of children, particularly children with apparatus. I think if that point were more generally accepted, there would not be so many deformities.

Prevention of deformities in surgical conditions as a principle is gratifying to orthopedic surgeons as heretofore the general surgeon has thought more of life-saving measures than of function.

It is a great disadvantage to a growing child to have a limb put out of commission. That stops growth. Atrophy is about as bad as disease. Children who suffer from atrophy of disuse have as serious a problem as atrophy from disease. If a leg, even if ankylosed, is in a position that it can function, it means the child can develop to a greater degree than otherwise. Prevention of deformities also encourages the circulation. A limb that is deformed does not have proper circulation and that is one of the big factors in healing. You cannot have normal healing without normal circulation. Therefore the condition heals and is much improved by a posture which is normal, allowing your circulation to be better. The child can be gotten up quicker and will make a much more satisfactory recovery. It is not infrequent to see children come into the wards twisted up, and the thing you strive to do is to get the child straightened out so that he can begin functioning because you know he will then begin growing again. Otherwise, he will not.

The point I wish to make is that in preventing your deformities you are doing the best thing toward the healing of the individual. The healing will be

more rapid and satisfactory if the part is held in the proper position and the function after healing has occurred will be much better and will be the means of preventing further trouble after the patient has recovered. So that the whole thing we are thinking about in preventing deformities is function; and I think Dr. Rainey has emphasized the point very well.

DR. J. D. GRIFFITH, Kansas City: I heard only a part of the paper.

I want to call attention to one thing. Dr. Rainey in the latter part of his paper spoke of Volkmann's contraction. I have had a little bit of experience along the line of fractures since 1870. I have my first case of Volkmann's contraction to see in which the fracture was not at or above the middle of the forearm. We should remember the fact that direct fractures should never be put up in permanent dressing. Indirect fractures can be put up. Those cases of contraction which I have seen have been the result of direct violence.

DR. WARREN R. RAINHEY, St. Louis: I am very glad there has been so much discussion. It seems we all about agree.

I want to call attention to a remark about the position of the hands. That related particularly to burns of a type where you are going to get scar contraction and the fingers pull off to one side. I think it is possible to splint the hand loosely to some type of board splint covered with vaseline gauze. Patients confined in bed for comfort drop the hands across the abdomen. You will wake up in three weeks to find you have contraction of the wrist which is impossible to overcome, and the fingers take their natural position of abduction by gravity.

I made this paper a little rangy, covering a number of points, for one reason: to show that in the treatment to prevent deformity the surgical principle is about the same for burns, arthritis, and acute traumatic injuries—the same principle of abduction or flexion should be borne in mind.

I merely mentioned Volkmann's contracture while on a subject where we have been talking so extensively of applying splints, to warn us again of the dangers that are always possible with too tight splinting. I remember a case of a doctor called in the country to set a broken arm where a boy had fallen from a ladder. The roads were bad and he could not get back for four days. He put on one board splint one below and one above, and fixed with a bandage. Throughout the course of the night the boy was in agony. He walked the floor with the pain. About seven o'clock he said the pain commenced to leave him. The doctor got back in four days. He was in the midst of an influenza epidemic. When he saw the boy the hand was bluish and the fingers swollen. He readjusted the splints. Three weeks later he noticed a contraction. Instead of taking off the splints and starting massage, he kept tightening the bandage. Finally he gave up and brought the boy in for surgical interference. He did not realize his primary tight bandage had been the cause of the Volkmann.

There is a symptom in Volkmann paralysis similar to a ruptured appendix. There is a period of acute pain. When the pain stops the damage is done. It does not mean that we are on "Easy Street" when they call up and say, "The patient is better tonight." When the doctor is notified the patient is suffering he should have the bandage taken off. There is relief from pain when the appendix ruptures the same as there is relief from pain after the ischemia is complete in Volkmann's.

SOME PRACTICAL POINTS IN THE HANDLING OF MALNUTRITION IN OLDER CHILDREN*

BORDEN S. VEEDER, M. D.

ST. LOUIS

The last few years have witnessed a widespread interest in the subject of the undernourished child. Numerous surveys of both urban and rural children have shown that from twenty to thirty per cent of the children of school age are ten or more per cent. below the average or normal weight for height, and hence may be regarded as malnourished. Despite the fact that the subject is primarily a medical one, the movement to improve this state of affairs has had its impetus and extension largely through the laity and non-medical health workers, and thus like so many of the other public health movements, as, for example, infant welfare and tuberculosis, not only has much of the effort been misdirected and wasted, but the medical profession has been subjected to a criticism for its lack of leadership and interest which to a certain extent has been justified.

The causes of malnutrition may be grouped under two general headings, although the two are rarely unassociated:

1. Physical defects and disease.
2. Environmental causes.

Among the important causes in the first group are cardiac disease, tuberculosis, chronic malaria, defective vision, chronic infection and obstruction of the upper respiratory passages, bad posture, and the like. These are matters upon which only the physician is able to pass judgment. Before an attempt is made to improve nutrition the presence of pathological conditions must be eliminated, or, if present, corrected or treated. Thus, before any attempt is made to consider the second group of causes the first must be gone into and evaluated. I wish to stress the importance of this point as it is just here that the non-medical worker necessarily falls down, although it is not within the scope of this paper to discuss the correction of the purely medical conditions.

If minor physical defects are not considered (and practically every child shows some defects) we find that the larger percentage of children ten per cent. or more below the weight for height of the average child when checked by some standard as Wood's tables, are malnourished as the result of bad hygiene, bad health habits, over-fatigue, dietetic faults and errors, worry, and the like, which may be

*Read by title at the sixty-sixth annual meeting, Missouri State Medical Association, Joplin, May 8, 9, 10, 1923.

grouped together as environmental causes, and it is the handling of such children that I wish to discuss, as these children are more and more being brought to the physician by their parents who have become alarmed by their attention being called to the importance of malnutrition by teachers, the public press, etc.

The basic underlying factor upon which success in handling the malnourished child depends is the gaining and holding of the interest of the child. This point cannot be emphasized too much. It is the child who must be worked with and the parents through the child. I have found it necessary to say frankly to parents when such a child is brought to me that I am only willing to undertake the case if I am allowed my own way with the child and that they are not to have anything to say except to co-operate as requested. Further, that whether or not success will be obtained depends entirely upon how much interest can be aroused in the child in carrying through the program to gain weight. The interest and confidence of the child can only be obtained if the physician himself is honestly interested in the child and the child's problem.

After the physical condition has been gone into, the next step is the obtaining of a clear picture of the child's life and habits and this can only be done in the home. Frequently several home visits are necessary before it is possible to obtain the child's normal reaction to its everyday surroundings and to determine the factors which are involved. The simplest way of obtaining an accurate picture of the "food intake" is to have the child—not the parent—keep an itemized list for two or three days of everything taken to eat. In this way not only a view of the total quantity is obtained, but of the type and variety of food. At the same time an activity list for forty-eight hours will give an idea as to the amount of rest, sleep, play, school, etc. An incomplete record kept by the child, augmented by verbal reports from the parents, is much better than a detailed account kept by the parents, as it subconsciously aids in getting the child interested in the problem.

Malnourished children almost without exception are small and erratic eaters and as a rule breakfast is the most difficult meal. It is a good plan to concentrate at first on the breakfast, as underweight children almost without exception go to school without sufficient food. A simple device is the 500 point breakfast. A list of food is given as follows, each article counting 100 points, and the child is allowed to make up 500 points in any way he wishes, provided that at least three items are taken.

1 egg—boiled, scrambled, poached.
glass of milk.

cup of cocoa.

1 piece of toast with butter.

1 piece of bread with butter.

1 large strip of bacon.

1 large tablespoonful cooked cereal with

2 tablespoonfuls cream.

2 large tablespoonsful uncooked cereal with

2 tablespoonsful cream.

1 banana.

1 orange.

2 tablespoonsful berries with cream.

Each day the child must make out a list with the number of points taken. It is surprising to find how quickly a child takes to the task of keeping up the record to "show the doctor," and soon the eating of a good breakfast becomes a habit. Later on the same scheme may be applied to the other meals. It is a poor policy to make out too strict or too rigid a diet list at first, but as the child's interest becomes awakened the foods of greatest value for gaining can be stressed. If a child eats well at lunch and dinner food may be given between meals. If, however, the quantity of food taken is small it is best to interdict food between meals in order to produce hunger and a better appetite for the regular meals. The total quantity of food taken should be worked up to at least 2000 calories or more daily for a child between six and eleven years. It is usually found that the parents have become greatly exercised over the question of food and are constantly nagging the child to eat more and are watching every mouthful taken. In these cases where the food question has become an item of conflict between the parents and child, the parents must be made to drop the subject and pay no attention to the food. Frequently leaving the subject alone will distract the issue from the child's mind and much larger quantities will be eaten.

Just as important as the question of food is the question of rest. It is usually found that either the child takes no rest during the day, or else a questionable rest or nap after lunch which the youngster resents so much that it has little if any value. For rest it is much better to have a twenty minute relaxation period, starting thirty minutes before lunch. The child is placed flat on his back on a blanket on the floor with a small pillow placed under the shoulders with the head, buttocks, and legs resting on the floor. This places the body at rest in a good posture with the chest raised and abdomen in. It is remarkable to see how often in a few days a child will begin to relax and really rest. Twenty minutes of this is worth two hours of tossing around on a bed after lunch. If posture is bad or nervous tension too high a second twenty minutes about four or four-

thirty is given. After twenty minutes' rest the child is allowed to get up and a broom stick is held behind the back, locked in place by the elbows drawn back and the hands held across the abdomen. This throws the relaxed muscles into action in a proper position. After playing about for ten minutes the child sits down to lunch in a rested, non-excited condition and there is no question but that it aids materially in a better and bigger meal being taken.

As important as the question of actual hours of rest is the question of the mental and physical activities. Thus all extra-mural school work, as music, dancing lessons, and the like, must be omitted. These can be held out as "bait" to the child to be taken up again after he has gained, provided the child is interested in them. Social activities must be minimized, but to eliminate all social play and make an invalid of a child is wrong from a psychological standpoint.

Over-exercise is to be guarded against. The undernourished child tires more easily and more rapidly than a normal child, and hence what might be ordinary play for a normal child is a strain upon the undernourished. For this reason a relaxation period in the middle of the afternoon is frequently necessary. Practically every undernourished child has a bad posture together with poor muscular development and co-ordination. As a rule the undernourished child takes to gymnasium work badly and complicated exercises are poorly done and of little benefit. The younger the child the more difficult it is to have him carry out exercises with any degree of benefit. I have, therefore, come down to using six simple exercises, each of which is repeated morning and night six times, as follows:

1. On back. Bring both legs up and let them down slowly.
2. On abdomen. Fold hands behind back and slowly raise head and chest as high as possible.
3. On back. Raise to a sitting position, and back.
4. On abdomen. With arms flexed at side and palms flat push body up holding body rigid. This is quite difficult.
5. Standing. Hands on hips and with body and head erect squat on heels, and return to standing position.
6. Standing. Arms front and extended, ring arms back, raise on toes and inhale. Exhale and at the same time bring heels slowly down and arms back to original position.

The first four exercises may be started at once and the fifth and sixth added later. As a rule braces for bad posture are to be avoided, and posture corrected through exercises. Some contend that posture is responsible for a large part of the malnutrition, but it is my feeling

that bad posture is simply a part of the general picture. Usually the posture improves as the child gains in weight without special attention being directed to the condition.

As stated above the results will depend upon the interest that can be aroused in the child. The nutrition class has been very successful as it utilizes the competitive spirit. It is more difficult to stimulate the interest of a child at home and particularly when there is but one child in the family. Environmental conditions are always most marked with the "one child" and most difficult to cope with. Taking one of these children away from the parents and placing him with other children in a different family will frequently lead to a gain of several pounds in a month without any particular regime or method being used. When it is impossible to change the environment, competition against a theoretical line or a weight chart may be utilized, and a crude weight chart constructed by the child made of cross lines with pounds on the upright line and weekly dates for weighing on the base line forms a graph which is a constant reminder. Most children of school age are very reasonable and tractible even though they take the pose of "don't care." They can readily be impressed with the idea that to gain weight they must "eat more and fuss less."

It may seem at first thought that the subject is not one of medical importance or great interest to the practitioner, but the lack of resistance to infection and the general ill health of the malnourished child is as fundamental a medical problem as the treatment of a case of pneumonia. Furthermore, the condition cannot be improved or cured by the prescribing of a tonic, which has been the chief medical advice of the past, but only through the painstaking study of each individual child and readjustment of his environment and habits. Each child has his own problems, and the working out of the environmental causes in the individual case and their correction will be found as interesting as the average problem of medical research.

Note.—Weight charts, pamphlets and the like can be obtained from the American Child Health Association, 370 Seventh Avenue, New York. "Nutrition and Growth in Children," by W. R. P. Emerson, Appleton, is a valuable book on the nutrition of children.

Humboldt Building.

SOME OBSTETRIC PROBLEMS*

F. T. VAN EMAN, M.D.

KANSAS CITY, MO.

Had Solomon been an obstetrician, I am inclined to think that he would have made at

*Read before the Kansas City Obstetrical and Gynecological Society, May 2, 1923.

least one exception to his statement, "There is nothing new under the sun," for no matter how long in years, or how rich in experience we are, or how confidently we begin at last to feel that we have covered the entire gamut of obstetrical situations, some patient will sooner or later spring a surprise upon us and give us something new. Of course, it is only new to us and our own particular experience; no doubt it happened many times before in the work of other men. The foregoing is mentioned merely to emphasize the statement so often made that no one man can ever know it all.

Being asked at almost the eleventh hour to bring something before this Society and casting about for a subject that might be of some interest, it occurred to me that some recent obstetrical problems might be presented for a critical discussion which would be of some benefit to us all and to the writer in particular.

PROBLEM NO. 1

Without going into tiresome case details, I will take up Problem No. 1: Given a case which is abdominally a right anterior position of the occiput (cephalic presentation), fetal body well up to median line, right flank empty, and fetal heart most distinct to right of the median line and below the umbilicus, an average pelvis and an average size baby, can we, in such a case, have a posterior rotation of the occiput to an R. O. P., which becomes persistent and requires operative interference, or even a rotation to the hollow of the sacrum, with either a spontaneous or a low forceps delivery, with face just under the pubes?

I have just sent a case home from the hospital in which the condition just described prevailed; a low forceps with the occiput in the hollow of the sacrum. Was I in error on my original diagnosis of position? One must admit this possibility of course yet in this case I think not. The terminal findings in apparently right anterior cases have frequently proved either, the first diagnosis wrong, or that a posterior rotation has occurred. I have long since learned to look upon all apparently right anterior positions with suspicion and have reserved the right to be mistaken. I trust no one will feel the least hesitancy in telling me just what he thinks about the matter.

PROBLEM NO. 2.

Problem No. 2 deals with the ever present question of persistent occipito-posterior cases. Is this condition becoming more common in our advancing civilization, or did we always have it with us and fail to recognize it? In the early days of my medical work I did more or less of obstetrics yet I can remember very

few cases having had much trouble. I rarely resorted to forceps. Now I frequently meet with trouble and forceps are often used. I do not think I am any great exception to the rule, judging from my observation of the work of others in the hospitals. Or is it because most of the obstetrician's work is done in the hospital where conditions are ideal for operative obstetrics? I cannot think so, for I do not believe that any of us would subject our patients or their babies to any procedure which involved an added risk and danger simply because we happened to have them in a suitable environment. No, I am convinced that modern civilization is not conducive to normal child-bearing, and this explains the increased frequency with which obstetrical problems arise.

It is no uncommon experience for us to be called upon to attend a young woman in her first confinement whose delivery is a most difficult one and yet whose mother has had a number of perfectly normal and easy child-births.

In a recent little flare-up of work I had five cases in thirty-six hours; three of them were persistent right occipito-posterior cases, and all were posterior in the beginning of labor. The babies weighed, respectively, 6 lb., 12 oz.; 8 lb., 15 oz., and 9 lb., 2 oz. Case No. 1 (the smallest baby) reached second stage in 7½ hours, but in another hour and a half began to show evidence that she could not complete the delivery herself. After a medio-lateral episiotomy the forceps were applied and, as the head advanced, a tendency to anterior rotation was noticed so the delivery was completed by the Scanzoni method. I might say that the diagnosis of a posterior position of the occiput was in each of these cases verified by location of the posterior ear and the direction of the lobe of the ear. The baby was living, uninjured, and the mother received no additional injury through the method of delivery chosen. Perineal wound was repaired; convalescence uneventful.

Post-partum examination showed the uterus in retro-displacement, a condition that existed before pregnancy occurred (I happened to have examined the case about six months before). Cervix un torn except the usual slight scar, anterior vaginal wall relaxed, introitus gaping somewhat. Perineal body good.

Case No. 2 (8 lb., 15 oz. baby) was a large, fleshy young woman, weight 186, McDonald 43 CM., due January 16. Castor oil, quinine and several doses of pituitrin finally brought her into labor though not continuously. More or less gas and oxygen was given her for twelve hours. Finally complete cervical dilation was obtained, the membranes were ruptured, the posterior position verified and a bimanual correction to an anterior position

performed. The cord now prolapsed so a podalic version and extraction was done. Baby living and uninjured, puerperium normal. She now has a fair perineal body. Uterus in good position. Cervix shows a right lateral tear (slight).

The third case was mixed up on her menstrual dates and as near as we could estimate she went two weeks over her time. Three rounds of castor oil and quinine and one of pituitrin failed to start labor. A bag induction was not done because the apparent size of her baby and her peculiar tendency to give up after a little pain made a Cesarean section a possibility. Indeed, I have thought since that a Cesarean section would have been the best procedure. With the help of morphin scopolomin, gas, oxygen, and moral suasion we finally completed the first stage, after which a medio-lateral episiotomy, a bimanual correction to anterior, and a forceps delivery, which was extremely difficult owing to the very large head, completed labor. Baby living and uninjured. An extensive tear occurred in addition to the episiotomy wound. Bladder catheterization was required for nine days. The perineal sutures sloughed out and my patient had a slow, tedious convalescence and is not yet entirely well though sufficiently so to make a visit to her home in another city. I am not proud of this case. I almost wish I had resorted to a Cesarean—but she had an enormous scar on her abdomen as a result of a previous operation (a pus appendix with drainage) and had spent weeks and months in getting well, so there was no telling what we might have encountered within the belly. She was a poor surgical risk at best. We have a fine baby and a live mother who can be fixed up eventually and we might not have had either the other way. Did I use good judgment?

The point in these cases seems to be the question as to the best and proper method of handling a posterior position where rotation anteriorly fails and our patient reaches the point where she must be helped. No hard and fast rule can be followed; it is a question of quick judgment in the individual case as to the best procedure for that particular one. I have since then had several cases of the same type where I have first ironed out or stretched the pelvic floor and without an episiotomy have done a version and extraction with living babies and no injury to the mother, and in a fairly large majority of cases I am coming to the conclusion that this method gives us the best results both as to the maternal injury and fetal mortality.

Three years ago I had the opportunity of watching various men in the Chicago Lying In Hospital do episiotomies; in fact, quite a number of them every day for one week.

Unfortunately, I did not get to examine these women later. However, I became quite enthusiastic over the procedure and have done quite a lot of them since then myself. In some cases my results have been ideal; in fact, restoring my patient to her original anatomical condition. A few have been flat failures and most of them, while leaving good perineal bodies, have left a gaping vaginal opening with more or less relaxation of the anterior vaginal wall. I asked Dr. Lee what was his percentage of failures, and he said, "Two in six years!" I shall have to admit that I perhaps do not know how to do this operation, although it looks good after being done only it does not always hold.

I believe Potter has stimulated us to do something that is really worth while, and that is ironing out and stretching the pelvic floor and perineum preliminary to operative delivery, and even in spontaneous cases. You may call it meddlesome midwifery if you like but, done properly and with proper aseptic precautions, it will cause no trouble (post-partum) and it will save many an injury to the mother and perhaps to the baby as well.

Are we resorting to the use of the forceps too frequently? Since the opening of the new St. Luke's Hospital 36 per cent. of the deliveries have been made with forceps. I recently heard of a case in which the second stage of labor had been allowed to drag on for nearly five hours, the fetal head pounding against the bony pelvis and perineum all or most of this time. Result, a dead baby and a thoroughly exhausted mother. A reasonably early interference probably would have saved both. If Crile has taught us anything, it is that pain has a very detrimental influence on our patients even sometimes causing their death. If every man who does obstetrics could be compelled to undergo a real rectal operation in the hands of a proctologist who believes in carrying out a very active after treatment, dilatory and otherwise, his sympathy for his parturients would be greatly enhanced and his viewpoint vastly broadened.

Once the cervix is completely effaced, dilated and retracted, and if the patient does not in a reasonable while show decided progress, regardless of the time, she is entitled to assistance: not only she but her baby as well. I believe more babies are lost by delay than by the skilful use of forceps.

Another problem, which presented itself very suddenly in a recent case, is shock. We are quite accustomed to hearing the surgeons speak of surgical shock, and post-operative shock, but in obstetrical work we are not often brought face to face with this condition, whatever it is.

This patient was a primipara of the slender, delicate type, who passed a fairly good physical

examination with the exception of a rather rapid pulse and some irregularity in the heart rhythm. She had had frequent attacks of tonsillitis, also attacks of influenza and pneumonia within the last two years which no doubt explains her myocardial condition. She entered labor at 3 a. m., fetus L. O. A., and completed the first stage in thirteen hours. In another hour and fifteen minutes she showed evidence of inability to complete the delivery by her own efforts. A little ether was given her and forceps were applied. Extraction was a little slow and difficult. She came out of the anesthetic quickly, talked to us, and was to all appearances perfectly normal. The third stage was then completed easily after which the anesthetic was resumed, there being some repair work to be done. In just about three minutes she collapsed, became pale and pulseless, and showed evidence of profound shock. There had been no unusual bleeding; in fact, rather less than usual. Active measures brought her up so that in three hours I felt safe in leaving her but was called back to the hospital in about two hours and from that time until the next morning we were kept busy. Several times it seemed as if she were going to slip out on us, but finally we began to get on firmer ground and from this time on she gave us no further trouble, making a perfectly normal convalescence and today is apparently as well as ever. What was it, and why was it?

Another problem presented itself recently. Prior to 1918 and 1919 I did not regard circumcision very seriously, but my observations during my army service in Texas converted me, or at least made me a far more active advocate of this little Jewish rite but, while I still will not hesitate to advise it in a large number of cases, a recent experience shows that in addition to hemorrhage it is not without an element of danger.

The case was one of persistent R. O. P., in which I did a podalic version, first stretching the vaginal outlet. No injury to the mother followed and none to baby, except a little bruising of one leg in delivery which gave me a little trouble but which cleared up entirely in forty-eight hours. When eight days old the baby was circumcised by one of our surgeons. The following morning the nurse called my attention to the penis. It did not look exactly right nor did it look much better on the next day although the baby seemed perfectly well. On the third morning, or seventy-two hours after the operation, there was a dusky reddish area spreading out from the genitals to the buttocks, and the baby's temperature was 101.2 rising to 103.6 in the afternoon with the reddened area spreading well over the lower half of the back. From this time the erythema spread down the right leg to the toes, the foot becoming very

much swollen, and as the lesion spread downward it cleared up above. The temperature persisted from 100 to 102. The baby continued to take its food and only cried when handled. At the end of one week the condition subsided and the baby was sent home with its mother and a nurse. The case was isolated, of course. The baby was taken from its mother, whose breasts were emptied at regular intervals and the milk taken up to the little one. The baby has now been at home several weeks and no further trouble has occurred.

The starting point of the lesion, together with the time of development (72 hours after the operation) makes us believe that the point of entry for the infection was the circumcision wound. It goes to show that an erysipelas can arise from elsewhere than the usual point, viz., the naval. It also shows that this operation has a certain element of danger and furthermore should teach us that sterile rubber gloves should be worn and the instruments and needles sterilized by sufficient boiling instead of being taken out of one's pocket and dropped into alcohol. Also that the parts should be carefully cleansed before proceeding with the operation.

One more problem and I am done. I insist upon all my cases returning in eight to ten weeks after delivery for a post-natal examination and in many cases I find, upon exposing the cervix, what might be called erosions. Not having examined these women before pregnancy occurred we cannot say that this condition did not exist but, especially in primipara, we will say that it did not. No infection, however, occurred and the puerperium had been perfectly normal. I would like to know why we have this condition. Is it a mild infection of the cervical endometrium with the vaginal bacteria as causative agents?

A few applications of a 10 per cent. Agno² usually clears up the trouble.

These are a few of my problems. Your discussion and criticism is cordially invited.

404 Bryant Bldg.

GASTRIC HYPERACIDITY AS AN ETIOLOGICAL FACTOR IN PYORRHEA ALVEOLARIS*

JAMES I. TYREE, M. D.

JOPLIN, MO.

As early as 1875, Dr. John T. Riggs¹, in a paper read before the American Academy of Dental Surgery, described and defined the condition which is frequently called by his name but technically known as pyorrhea alveolaris. It is primarily a disease of the alveolar processes in which after partial absorption of the

*Read at the sixty-sixth annual meeting, Missouri State Medical Association, Joplin, May 8, 9, 10, 1923.

alveolae, the gums become involved, recede and expose the roots of the teeth with resultant bleeding and some pus formation. This pus may be sterile or infectious.

Volumes have been written concerning the etiology of this disease but the generally accepted theories suggest that the agent which is directly responsible for the condition may be either local or general but is more probably both. Duke² suggests a group of causative factors including the various micro organisms, staphylococci, streptococci, amoebae, spirochaetae, etc., chronic local irritation or trauma; unsanitary mouth conditions; conditions which prevent normal massage of the gums such as irregularity of the teeth and defective dental work and constitutional conditions which increase the susceptibility of the gums to infections such as diabetes, alcoholism, infected tonsils, chronic appendicitis, etc. Bunting³ feels that phorrhea is favored by our present day mode of civilized life, that is, our foods are so delicately prepared that we do not use our maxillary processes in chewing, as well as advanced age, systemic intoxication, faulty diet and metabolism, conditions which lower tissue resistance, and local irritations and infections in the oral cavity. Maurice Roys⁴ states that local trauma and infection are only secondary to degenerations in the alveolar bone which is general and systemic in origin. In other words while he admits the possibility of a local irritating agent, he does not believe it will cause pyorrhea unless there is a constitutional defect. Eugene S. Talbot⁵ gives as possible causes of pyorrhea, auto intoxication, scurvy, etc., and states that "The etiology seems to be due entirely to irritation both constitutional and local." Homberger⁶ is of the opinion that pyorrhea is hastened by a deficiency of calcium salts and vitamines and by the eating of soft foods. Burnett⁷ argues that pyorrhea is not primarily infectious in origin but the result of a defective deposit of calcium salts in the alveoli, with a resulting abnormal condition which invites suppuration. He further states that tests of the calcium content of the blood will reveal the abnormal tendency.

I have purposely given the opinion of several authorities on pyorrhea alveolaris in order to dispel the idea that the disease is due purely to a local condition. It can be readily seen from the above references that the modern tendency is towards the belief that pyorrhea is produced primarily by a constitutional agent since all authorities agree there are many mouths subjected to severe traumatic strain either calcar, operative or occlusal that do not develop pyorrhea. If the constitutional irritating agent is the primary cause of

pyorrhea it has occurred to me, after examining and treating a large number of cases of gastric hyperacidity, to wonder whether or not a long standing high acidity in the stomach could cause a diminution in the calcium content of the body with a resultant defective deposit of calcium in the alveolae.

In reviewing my cases of gastric hyperacidity, most of which have been associated with gastric ulcer, I have eliminated those which present the following conditions, tuberculosis, pregnancy, syphilis, metal poisoning, diabetes, severe anaemia, malocclusion, and old age in order to ascertain just what bearing, if any, the gastric condition in the remaining 165 cases might have on pyorrhea. I found in these cases that 7 per cent. had all teeth extracted, 4 per cent. had a very mild pyorrhea, 24 per cent. moderate pyorrhea, 52 per cent. severe pyorrhea, and 12 per cent. without pyorrhea but with some gingivitis.

Three-fourths of this 12 per cent. gave a history of gastric hyperacidity of less than six months' duration so that only 3 per cent. of the total number can be considered as having had gastric conditions of relatively long duration without development of pyorrhea. All of the seven per cent. who had had all their teeth extracted gave a positive history of severe pyorrhea which puts 59 per cent. of the total in that class.

Eugene S. Talbot⁸ states that 10 to 25 per cent. of all patients have pyorrhea alveolaris. In my series, 59 per cent. of the patients had severe and 24 per cent. moderate degree of pyorrhea, which seems to indicate that the condition is more than three times as prevalent among individuals with gastric hyperacidity than among the average of dental patients some of whom must certainly have gastric hyperacidity.

In practically all of my cases, the stomach trouble antedated the pyorrhea. A few did not remember perfectly, practically all gave a history of gastric hyperacidity which preceded their pyorrhea several years, many believed that their mouth condition was due to their "bad stomachs." A casual glance at a case of hyperacidity might cause one to believe their mouth condition to be the cause of their oversecretion, however this is not the case except in those cases where the teeth are so bad that the patient can not masticate, since food swallowed before being properly chewed would take longer to leave the stomach and might produce a hyperacidity. However I have tried to exclude this type of case from my group.

Bacteria found in foci about the teeth can produce ulcer and hyperacidity of the stomach as proven by Rosenow⁹ but it seems improbable

that simple pus around the teeth is ever swallowed in sufficient quantities to do much damage particularly since the bacteria found in the stomach are rarely the type that could come from the mouth. With these facts in mind, i. e., that the gastric hyperacidity antedated the pyorrhea, that the swallowing of bacteria does not produce chronic hyperacidity and that there was three to four times as much pyorrhea in my gastric hyperacidity cases as in average dental patients, I feel assured in concluding that the hyperacid condition must have had some bearing on the mouth condition.

A consideration of the treatment of this type of case seems to bring out the connection between pyorrhea and gastric hyperacidity even further. The elements of the treatment are diet, alkalinization and care of infectious foci.

In the diet, we attempt to give foods which are supposed to be weak secretory stimulants. In choosing such foods we must consider the following factors:

1. Heat. The food must not be hot. (Heiser¹⁰ states that one hundred and four of one hundred and eight gastric ulcer patients gave a history of eating very hot foods and he suggests the possibility of blistering the mucous membranes of the stomach.)

2. Preparation. Must be simple and not permeated with grease.

3. Manner of ingestion. Must be slow and in small quantities.

4. Selection. This is the most important factor.

In dieting foods that were weak secretory stimulants were used. Whether you agree with Rehfuss¹¹ who found that 10 different chemicals produced the same acidity in thirty minutes in the stomach or with Pawlow¹² who found that certain foods caused greater secretion than others, the fact remains that certain foods do produce greater acidity in the stomach than others and this may be ascertained if the digestive curve is followed long enough. This may be due to increased secretion, lack of acid absorption, or retention. Certainly there are weak and strong secretory stimulants.

The foods that are weak secretory stimulants are alkalies, plain water, tea, milk, cream, sugar, starch, simple vegetables that do not leave small particles of residue as do corn, whole wheat and the small seeds of some fruits. This would permit potatoes, rice, farina, cream of wheat, asparagus, carrots, beans, turnips, bread, cauliflower, peas, beets, etc., well cooked lean meats as chicken and lamb, fish and eggs.

The following table showing the calcium content of the above foods will quickly explain what bearing they may have on the pyorrhea

condition when used in treating gastric hyperacidity.

Food	Per cent. of Calcium
Potato .....	.02
Milk .....	.17
Beef .....	.01
Lamb .....	.03
Pork .....	.03
Poultry .....	.04
Flour .....	.02
Peas .....	.14
Turnips .....	.09
Fish .....	.04
Eggs .....	.09
Beans .....	.22
Beets .....	.04
Carrots .....	.11
Rice .....	.01
Cauliflower .....	.09
Asparagus .....	.07
Parsnips .....	.09

This table prepared from writings of Wiley, Leach and Sherman¹³.

In this table, we find beef, pork, potatoes, and bread, the four things that go to make up the greatest part of the average man's diet, all low in calcium, while all of the others which have been named as weak secretory stimulants are relatively high in calcium. Especially is this true of milk and eggs, which are .17 per cent. and .09 per cent. calcium and which make up a large part of the diet of the patient under treatment for gastric hyperacidity. So that we find the foods that are weak secretory stimulants the foods that are high in calcium content.

It is not my intention to lead you to believe that the above foods were given originally because they were high in calcium content, this fact was noticed only after certain results caused attention to be directed to it.

As to alkalinization, it is held by Sippey and others that a high acidity in the stomach devitalizes tissue and thus interferes with the healing of a peptic ulcer so that in the treatment of these cases an attempt is made to alkalinize the patient thoroughly. To do this soda bicarbonate, calcined magnesia and calcium carbonate are used. Here again we get an increase in our calcium intake, for one of the most useful types of calcium has been chosen, namely, calcium carbonate. We use this form because of the proof given us by Homberger¹⁴ who proved calcium carbonate to be the most readily assimilable form of calcium. Now taking into consideration the foods with a relative high calcium content that are used in the dietary of a case of hyperacidity together with the direct administration of calcium in the form of calcium carbonate, we find that we are not only overcoming a deficit in calcium intake but are giving more than is actually required. Most authorities

agree that the calcium requirement is approximately 1 gram of calcium oxide per day¹⁵.

The question might be raised that if the calcium deficiency is great enough to cause defective deposits in the alveoli, why does it not effect the other bones. Voit¹⁶ has answered this with his experiments on pigeons. He kept a pigeon alive 1 year on food poor in calcium without observing any ill effects, after killing the bird the bones of locomotion were sound while the bones of the skull and sternum showed a marked wasting of lime, they were in places perforated. So that we would not expect any noticeable effect in the other bones of the body.

The third part of the treatment of gastric hyperacidity is to care for infectious foci. Under this heading would come the local care of the mouth. It is not necessary for me to explain that local care is not sufficient to cure pyorrhea for any experienced dentist will tell you that he can control pyorrhea with local treatment but he can not cure it by such methods.

We have then by our treatment of these cases:

1. Cleaned their mouths of pus.
2. Increased their calcium intake.
3. Lowered their gastric acidity.

The results so far as their stomachs are concerned are good. The interesting thing, however, is to observe that they were practically all free from pyorrhea over a period of three years.

Whether the lowering of the acidity, the increasing of the calcium or our local measures were the active agents in causing improvement, it is hard to say. I am inclined to believe that all were useful and believe that most cases of pyorrhea alveolaris should be examined as to a possible gastric hyperacidity since gastric hyperacidity is much more common than other constitutional causes given.

Summarizing, we find:

1. A marked prevalence of pyorrhea alveolaris in cases of gastric hyperacidity, from three to five times as much as in the ordinary dental patient.
2. These patients for the most part eat foods low in calcium content.
3. The treatment for gastric hyperacidity lowers acidity and gives an over supply of calcium in an assimilable form.
4. The local measures used are the same as the ordinary treatment of pyorrhea but the patients treated both locally and constitutionally seemed to have effected more permanent cures.

DISCUSSION

DR. JOHN M. BELL, St. Joseph: I have come across that condition, and one of my usual schemes

in investigating diarrhea is to get a specimen passed without artificial means and take it while warm on a microscopic slide for investigation. Differentiation is difficult, and we frequently take a smear from the teeth to compare with the specimen obtained from the bowels. I have been surprised to find almost invariably they concur in cases of hypoacidity. I doubt very much that the organism which accompanies pyorrhea could live in passing through the stomach if there was hyperacidity. Very few such organisms could pass through a large percentage of hydrochloric acid and find their way into the colon. That is the guarding agent of the colon.

I wonder if the doctor could give some information?

DR. E. H. SKINNER, Kansas City: This is a fine, big subject. It has been interesting. The Doctor has proven his points in his case reports. To my mind this matter of pyorrhea and gastric hyperacidity are just parts of the whole picture. They are two symptoms which are results of civilization. They are all a part of the way we live. The way we do not chew our food and do not eat correct food and do not do a lot of things are responsible for pyorrhea and hyperacidity, bone diseases (tuberculosis), and lymphatic instability.

Why is it we have pyorrhea? We are not eating any more the food God intended an animal to eat. We are so highly civilized we must eat cereals—the grain. When animals were put on this earth, we were intended to eat things that grow above the ground. You say, "Wheat grows above the ground." Yes, that is true; but it is the leaves of things we should eat. We should get more grit—more calcium—more green, uncooked food into our system. We refine the wheat and get the nice, white remains which the miller gives us, and we feed the rest of the perfectly good part of the food to animals in the farm of bran, or the grit goes to the farm chickens. We are not eating leaf food at all. We get it in the farm of salad, but most of us look upon a salad as something to be played with, rather than to be taken seriously. So we do not get a lot of calcium into our system. We need more live food.

I have to contend against that condition of hyperacidity in cancer patients. What is the first thing we do? We try to alkalinize the patient.

I feel this condition of pyorrhea and gastric hyperacidity is simply a matter of civilization. We must get down to food which has a little more life quality. We cook our vegetables and pour the water off. The water in which the peas and beans were cooked would probably do us a whole lot more good than some of the food we eat. We take the grit out of the cereal. We were not intended to eat cereals, anyway. They were intended to plant and grow more food. But civilization demands we get our food quickly and continuously throughout the year. As our population becomes more congested, we must get our foods in some way which can be kept over a long period of time to feed numbers of people. So we get away from eating leaves and greens and picking up grit and gnawing bones.

In all highly civilized countries we have a lot of decayed teeth. We are forced to artificial dentures. Every child at the age of eleven years, I heard the other day, has at least ten cavities in his teeth. Why? Because the children are not getting lime salts. We have dark-colored teeth because there is no enamel on them. We have bone diseases because we are not forming a good calcium framework.

It is impolite to chew a bone—to take up a chop and gnaw the meat off it. We should get more lime into our systems and not wait and have it chucked into us in the form of sodium carbonate. We should make it a polite function to pick up a T-bone and

gnaw the meat off it and chew the ends of the ribs and get more live food into us. We are so highly civilized we are all diseased!

DR. GEO. S. DOWELL, Braymer: I hardly know what to think about Dr. Tyree's paper. It does not agree with my observations in the length of time I have been practicing. My hyperacidity cases have clean teeth. If you will notice, you cannot look in the mouth of a hyperacidity case but it looks like you had taken some dilute hydrochloric acid and swiped the teeth off.

DR. JAS. I. TYREE, Joplin: The possibility of so many clean teeth as the doctor speaks of is rather astounding to me. Most dental authorities agree that something like 100 per cent. of us have gingivitis, and 10 to 25 per cent. have pyorrhea.

I agree with him on the chemical composition of water. We do not however drink water in sufficient quantities.

My recollection of the history of the time of Henry VIII. is that they did chew the meat off the bone but threw the bone in the corner. I agree with Dr. Skinner that if we eat meat alone, we should eat the bone. The dog does.

It is not a question of our chewing. Our food is so prepared and so cooked that we do not have to chew, so we do not. I think that most dental authorities at this time are of the opinion that we are getting more or less atrophy of our jaw bones.

Dr. Skinner is right concerning the question of the way we live. I think it all has a bearing on the case. In patients recently examined from the standpoint of having pyorrhea and nothing else—patients referred by dentists where they had been treated over a period of several months without any permanency in their cure being effected—practically all showed a high total acidity, as well as a high free hydrochloric.

I am not trying to discredit the thought that there are not other things that cause pyorrhea. The only point I was trying to establish was the large percentage of cases of pyorrhea that did occur in my gastric hyperacidity cases.

REFERENCES

1. Nelson's System of Medicine.
2. W. W. Duke. Oral Segis in Its Relationship to Systemic Disease.
3. Journal of the American Dental Association, February, 1923.
4. Pathogenesis and Prophylaxis of Pyorrhea Alveolaris. Dental Cosmos, August, 1918.
5. Nelson's System of Medicine, Vol. 5, page 15.
6. Journal of the American Dental Association, November, 1922.
7. Anales de la Facultad de Medicina, Montevideo, Italy. Ext. from Journal American Medical Association. Vol. 79, October 28, 1922, page 1558.
8. Eugene S. Talbot, Nelson's System of Medicine, Vol. 5, page 18.
9. North American Medical Clinics, 1921. Vol. 5, page 573.
10. A. Heiser. Medizinische Klinik, Berlin. Ext. in Journal American Medical Association. Vol. 79, page 1558.
11. Journal American Medical Association, December 24, 1921. Vol. 77.
12. Bassler. Diseases of the Digestive System. Vol. 1, page 33.
13. Wiley, Foods and Their Adulterations, third edition, Food Inspection and Analysis, by Albert E. Leach. Chemistry of Food and Nutrition, Sherman.
14. Homberger. Journal of American Dental Association. November, 1922, page 976.
15. Sherman. Chemistry of Food and Nutrition, page 187.
16. Sherman. Chemistry of Food and Nutrition, page 186.

THE EFFECT OF DEFECTIVE DIETS ON TEETH.—The effect of the amount of calcium and fat in the diet on the dentition of rats was studied by Clarence J. Grieves, Baltimore (*Journal A. M. A.*, November 4, 1922). Briefly, he found that a proper calcium-phosphorus-organic factor balance in any diet is most important in the formation and maintenance of normal bones and teeth and healthy attaching-tissues.

THE RECOGNITION AND TREATMENT OF POST-OPERATIVE COMPLICATIONS

F. W. BAILEY, M.D.

ST. LOUIS.

The comparatively brief stage in the operating room is the major factor in determining the degree of operative success, but is vitally dependent upon the stages that precede and follow it.

Manual dexterity, faultless technique, and rare surgical judgment are invaluable assets, yet they may all fail miserably if preceded by a careless diagnosis and preparatory neglect, or followed by stupid postoperative supervision. No other calling exerts so steady a demand upon the resources of the individual as does the one dealing with the various phases of health and life, and in no other activity is the neglect of detail and thoroughness so summarily punished.

The most dramatic moment of an operative case often develops in the presence of a post-operative crisis, where the reflection of pre-operative neglect is evident. That this may be avoided, so far as is humanly possible, several precautions are essential:

1. Thorough preparation of the surgeon.
2. Diagnosis, based upon a complete history, thorough physical examination and laboratory findings.
3. Careful preparation of the patient.
4. Commendable surgical judgment and operative technique.
5. Intelligent postoperative care, both immediate and remote.
6. Zealous subsequent observation and detailed instruction during period of convalescence.

There is no permanent standard by which a surgeon may be measured. Fortunately for our posterity, surgery is a progressive science. Theories that at the time appeared unassailable, operations and treatments that but a few years ago were deemed as stable as mathematics, are being daily laid aside, where they rest as stepping stones to the physician of the morrow. Certain medical truths, nevertheless, have lived from the time of Galen and Esculapius, and to these have been added the notable achievements of other pioneers of medical progress which will indelibly impress the students of the future and, so illuminate their paths that perfection may in time be approached.

From the day of the "barber surgeon" until recent years, technical skill was considered paramount. We are being taught by our errors that most of our ills are preventable and it is fair to assume that in the not far distant future our profession will be utilized by an educated public in conserving their health by preventing

illness rather than for the purpose of *fighting* illness to regain such a part of health as may have been untouched by disease. The writer's hope is modest in that he desires this superficial review of a gigantic subject to emphasize the true relationship between unhappy surgical results and their preventable, pre- and post-operative causes.

THOROUGH PREPARATION OF THE SURGEON.

It can hardly be denied that fewer errors in diagnosis will be made, less operative trauma inflicted, better surgical judgment displayed, fewer postoperative complications experienced and consequently more satisfactory end-results obtained, if the surgeon possesses the requisite knowledge and ability to make these accomplishments probable. If in addition, he shows sufficient interest in each case to supervise the preparation and after-care to the extent that the dangers of routine are avoided, and realizes that poor or rich, each individual patient is entitled to his most thoughtful efforts, he will possess the essential attributes of a surgeon.

DIAGNOSIS.

So replete is medical literature with articles upon the value of accurate diagnosis that it need be mentioned herein but briefly. Whether the ailment be obscure or evident, a penetrating history is valuable; a complete routine examination, including history, physical and laboratory, for all but urgent cases, so often leads to unexpected and even startling findings, that one misses much of the charm of the game and not infrequently endangers the patient if one relies on less complicated, rapid methods. As previously stated, the ultimate success of an operation is so tremendously dependent on the work applied before the operating room stage is reached, that to carry out the design of this article, the little and seemingly insignificant attentions must be generously treated. It is during the less heroic stages, before and after operation, that many of the more serious complications are invited or discouraged, and failure to recognize this truth will exact its toll of regret.

A positive preoperative diagnosis in all but dire emergencies is essential, for a seemingly simple case under the searchlight of careful scrutiny may surprise even the pessimistically inclined investigator. Nor must the tendency to procrastinate in the presence of unmistakable clinical symptoms be permitted to delay operation for the development of the finer points of diagnosis.

Emergency surgery belongs in a somewhat separate category. Haste may be essential. It requires the clinical eye, the experienced touch

and the courage to act promptly and thoroughly with such information as can be exacted without subjecting the afflicted to delay that may prove fatal. Yet even in the presence of dire emergencies certain precautions that will be helpful are not to be scorned.

We have long been in error in assuming that Nature has kindly divided the ills to which flesh is heir into two distinct classes, medical and surgical. No such alignment is possible, nor is it fair to the ill to presume it. In the building of a house the work of the various artisans interlaces from beginning to end, and the home of the soul is incomparably more intricate. Why should one hesitate in the face of even the slightest obscurity to invite the counsel of the fellow who has been trained to view from a different angle and to seek all possible aid in unraveling the Gordian knot of diagnosis?

PREPARATION.

A thoughtful diagnosis is a major portion of the preparation. The laboratory findings will present the blood and urine picture and the physical inspection will establish the degree of resistance or warn of inherent infirmities that require correction before proceeding.

The direct cause of a postoperative complication is often latent in the preparatory stage. It should be discovered and the consequent danger thereby anticipated. Preoperative conditions that may develop postoperative complications are as follows:

- (a) Hemophilia;
- (b) Lung and pleural complications;
- (c) Pyelitis and other nephritic disturbances;
- (d) Heart disease;
- (e) Imminent exanthemata, typhoid and exacerbations of other constitutional diseases;
- (f) Status lymphaticus and status thymicus;
- (g) Mental instability;
- (h) Delirium tremens;
- (i) Diabetes;
- (j) Acidosis;
- (k) Cystitis.

Of this group, the number that may be prevented from developing, or greatly lessened in severity, is astonishing. Nearly all may be anticipated by the aid of thorough diagnosis. Urgency may occasionally force operative procedure before removal of the hidden menace is possible, but it is seldom necessary to omit at least a working diagnosis.

The blood picture will enable one to prepare a hemophiliac for operation. Calcium chloride intravenously, sodium citrate intravenously or intramuscularly, hemoplastin, etc., will ordinarily bring the clotting time down to a safe

risk, unless due to long-standing blood dyscrasia.

The history will acquaint us with the possibility of mental unrest and delirium tremens, a disease not so extinct as the law demands. The laboratory findings will inform us when nephritic disturbances, diabetes, acidosis and cystitis are present and preventive measures can be instituted. The physical examination should reveal any respiratory lesion, however slight, and should inform the examiner of the condition of the heart and circulation; should apprise him of abnormal blood pressure, endocrine disturbance, unstable nervous system and constitutional diseases in general. It is not the author's intent to repeat methods of determining and treating the many preoperative complications with which all are familiar. The subject is broad and unwieldy and can be treated but superficially, leaving more detailed observation to later effort.

It must be emphasized that even slight bronchial affections and prolonged etherization are incompatible, and gas oxygen or local anesthesia should then be preferred. Serious kidney disease, diabetes, and status lymphaticus strongly contraindicate operation, except in dire emergencies, until preparatory remedial measures are effective.

Preoperative Stage.—The preoperative stage should be an impartial trial as to the ability of a candidate to accept the indicated treatment. In the absence of symptoms of serious unfitness, prompt preliminary treatment can be instituted and minor conditions removed or ameliorated. The more serious postoperative sequelæ may be prevented by precaution in the preoperative stage. A painstaking clinical diagnosis, supported by history, laboratory, X-ray, and physical examinations, will assure the patient of the best possible beginning of an undertaking not entirely free of hazard.

The victims of lymphatism and status thymicus are very prone to infection, and the danger of sudden death during anesthesia precludes the use of any respiratory anesthetic.

Exanthematous disease may develop during the hospital period, and particularly in children; careful inquiry into the general health of the neighborhood and repeated inspection of the skin, mouth, fauces, etc., in the presence of an otherwise unexplainable rise in temperature may reduce postoperative danger. Within the last year, and strange to say among children from rural districts, there have developed cases of smallpox, scarlatina, measles, diphtheria and chickenpox during the few days following operation for acute appendicitis with abscess. In another child with a foreign body in the urinary bladder, scarlet fever developed on the third postoperative day.

With a view toward anticipating anesthetic

or postoperative accidents, careful regard should be given to the physical condition and past history. Alcoholism, obesity, renal insufficiency, focal infection of teeth, sinus or tonsil may be disturbing factors and should be given careful preoperative attention.

Traumatic neurosis, ranging from mild hallucinations to acute mania, may develop in the mentally unstable, and when acute surgery during pregnancy is imperative, the danger of temporary mental unrest should be kept in mind and especial attention given to the urinary picture and kidney function.

Diabetes, when present, positively contraindicates operation except in emergencies. Failure to recognize and treat diabetes before interference will probably result in a serious infection, gangrene or diabetic coma. Karelowski reports a 20 per cent. mortality in 136 such cases, 78 per cent. of which died in coma.

PREOPERATIVE ACIDOSIS.

There is a certain danger in routine in the laboratory as well as at the operating table. Urinalysis is so common and so predominately negative of danger signs that failure to recognize a mild physiological disturbance may be excused. In the case of a patient with a history of slight dyspnea on exertion, persistent headaches, or dizziness accompanied at times by nausea or vomiting, extreme nervousness or slightly sweetish breath, it is wise to warn the laboratory technician to look carefully for acetone bodies in the urine and sufficient time must be taken for the correction of the condition if found. General anesthesia intensifies acid intoxication and when such a reaction is anticipated, should be replaced by nerve blocking or local infiltration. Acidosis will be again referred to in the consideration of the postoperative stage, but its great importance as a preoperative danger is not to be ignored. Its real treatment, as is true of most postoperative complications, lies in preventing its development, and only the surgeon who has failed to recognize it in time and has been forced later to see all efforts to overcome it prove futile, can appreciate the value of preoperative precaution.

LOCAL PREPARATION.

Preservation of the normal integrity of the field of operation will prevent postoperative blistering, dermatitis and possibly infection. Strong macerating antiseptics are antiquated. A good bath, careful shaving and sterile binder will meet all ordinary requirements for the day preceding. One thorough application of three per cent. iodine solution, with sufficient time to bronze the skin before careful removal by alcohol sponge, or a double application of five

per cent. picric acid solution in alcohol are equally effective. The simplest preparation, if thorough, is the best.

In the absence of specific urinary findings, avoid preoperative catheterization. The presence of prostatic obstruction, residual content or urethral stricture should be noted and given the very serious consideration it deserves, even to the point of delaying the operation for sufficient correction to assure safety.

The mental state of the patient is seldom given fair heed. A very few moments of cheerful conversation will clear the atmosphere for the long ride to the operating room. Perfect quiet in the operating suite, carefully screened operative paraphernalia and an anesthetist who possesses the great gift of inspiring confidence will soften mental impressions that are to determine the success of the anesthesia.

A well padded table with a pillow under the knees and lumbar curve, arms comfortably at the side after relaxation, will diminish postoperative discomfort. Intense backache on the first day or two is often the predominating complaint. Except in low abdominal and pelvic manipulation it can be materially prevented on the operating table.

Conjunctival ether burn is a discredit to the anesthetist. A drop of pure warm castor oil or olive oil in each eye before and after anesthesia and careful application of the mask will prevent. Although seldom necessary a tongue forcep, humane in type, should be at hand. Rude and constant application of jaw pressure is conducive to considerable discomfort. Avoidance of strained, unnatural position of the head and neck is a wise precaution, for the cervical as well as the lumbar ligaments can be strained during relaxation.

Permitting periods of partial return to consciousness with the consequent struggling, vomiting and inspiration of infective material is often a prime factor in future respiratory complications.

Violent purging, within 36 hours of operation, will insure a distended injected intestinal tract, and greatly increase the likelihood of severe gas pain and atony. The preliminary laxative should be nonirritating and effective and when possible given 48 to 36 hours before operation. This may be followed by an enema on the night before and the morning of operation, with fair assurance that the viscera are not unduly irritable.

Urine. More than one urinalysis should be obtained if possible. Especially important is the one on day preceding operation. A patient may enter hospital several days ahead and present a normal urinary picture; if purged and starved of carbohydrates and proteids and dehydrated, the probability of incipient acidosis is not remote. The bladder should be emptied

by catheter only if imperative just before leaving for the operating room.

Diets. Bland, nourishing, mixed carbohydrate and proteid diet should continue up to within 24 hours. During the last day and night preceding, liquid diet and fluids in great abundance should be given. This includes also glucose and sodium bicarbonate referred to above.

For the prevention of shock, retention of body heat in the operation room and afterward is necessary. The operating table should be thickly padded and all unexposed parts covered with several thicknesses of woolen blankets. Susceptible pressure points are to be protected by cushions. It is confusing to attempt to justify a palsy remote from the operative field.

OPERATION.

Difficult indeed would be an attempt to amplify the many and various features of an operation that are reflected for good or evil in the postoperative phase. Time permits only a general discussion of the more important errors or precautions which determine a stormy or peaceful convalescence and only those which may appear as vitally important will be considered at any length. It is somewhat unfortunate when a surgeon is so busy that he can give to each patient only the time required to perform the operation. He should at least be fully informed as to the preoperative status of each patient. Even in the routine of well conducted clinics, the personal element should not be ignored. It is confusing, when in the course of an operation, on the discovery of unheralded pathology, for the surgeon to call for a hasty review of the history and laboratory findings, realizing all the time that the individual who has entrusted his life into his hands is merely a casual acquaintance. One should afford all the time needed to at least a careful review of the assembled information obtained in each case and to a speaking acquaintance, sufficient to retain a distinct clinical vision of the individual, for future association with the pathological picture.

It is not intended herein to dwell in particular upon any of the operating room details, except in so far as acts of commission or omission affect the end result.

Although while difficult to dispel in the patient's mind the anticipated horrors of the operating room, a little tact and common sense will aid materially in softening the mental impressions and reducing psychic shock. The operating room is not a funeral parlor, nor are the attendants in white moving about silently to impress one as ghosts. The long ride through corridors and elevators to the dreaded room, serious faces, the rattle of instruments

and a tactless anesthetist form a combination of genuine mental hazards that sink deeply into an already depressed mentality and materially increase shock. When the preoperative hypodermic is omitted, it would be better for the patient to walk to the elevator or operating room in company with a cheerful companion.

ANESTHETICS.

The anesthetist, if properly equipped for this most important function and having previously become acquainted with the patient, with smiles and a few cheerful words, irrelative to the impending trial, can quickly direct the line of thought into peaceful channels and obtain rapid physical relaxation. The worth of a capable anesthetist is immeasurable. A rare talent is required to secure even safe unconsciousness and carry all types of individuals through the vicissitudes of surgical endeavor. The type of anesthetic must depend upon several factors. Excepting under conditions that directly contraindicate a certain type, it is wiser to use the one for which the anesthetist has been thoroughly trained. The reasons why ether should not be used in the presence of chest complications are obvious; chloroform in heart disease or either of them in liver and kidney deficiencies invites trouble. Crile and others have long since taught us the value of nerve blocking and the ease and safety with which gas oxygen anesthesia is administered with a low percentage of unpleasant sequelæ. This is true when administered by one trained in its use. Nitrous oxide is dangerous if administered by a novice. Local anesthesia now fills a long-felt want. Virtually devoid of danger, it is applicable in an ever-increasing field, and promises in time largely to supplant respiratory anesthesia; combined with gas oxygen analgesia it furnishes a most satisfactory and safe operating agent. In operations where all the vital forces must be conserved, local infiltration or nerve blocking, properly placed and given sufficient time, aided by gas oxygen analgesia, which breaks the current of psychic irritation, will be attended by minimum shock and few postoperative complications.

A relatively small proportion of operators are masters of local anesthesia, and much of the criticism directed toward it should be reflected to the critic and credited to his faulty technique. One cannot too firmly emphasize the advice that in the ordinary uncomplicated case and the absence of strong contraindications, the anesthetic to be preferred is the one of which the anesthetist is master.

In reviewing the various procedures which have a direct bearing upon the subject under consideration, one thinks first of those things which, while seemingly insignificant, are at the

same time preventable. For instance, a properly placed, generous incision exposing the area to be surveyed will (a) lessen the likelihood of overlooking pathology; (b) permit of a thorough exploration; (c) make unnecessary rough handling, stretching of sympathetic nerve bundles and trauma of visceral structures.

Persistent and violent retraction are potential agents of shock, adynamic obstruction, thrombophlebitis and a slow convalescence. Timidity and conservatism, especially in abdominal exposure, are ill advised precautions. If located anatomically, the length of an incision should be governed by the operative requirements and not by cosmetic ambitions. Keep in mind the fact that unnecessary exposure of abdominal contents is obviated by the protective technique of the operator.

To review briefly the operative incidents which most generously contribute to shock, the majority of which are preventable, are as follows: Prolonged anesthesia, the small or misplaced incision which makes necessary forcible retraction and severe tension on the mesenteric root, gall-ducts, abdominal veins, etc.; uncalled for rough handling of tissues, viscera and nerve trunks, long-continued insult to the mesenteric nerve filaments and blood vessels, packing off the operating field with gauze against the current of incomplete anesthesia, harsh drains that are painful to remove, careless soiling of sterile tissues, excessive loss of body heat and hemorrhage. A review of this group will convince one that careful technique can accomplish much to eliminate these progenitors of our postoperative difficulties, shock, hemorrhage, acidosis, infection, thrombophlebitis, obstruction, etc.

POSTOPERATIVE COMPLICATIONS.

Among the most serious postoperative complications the following deserve consideration: Shock, hemorrhage, acidosis, lung affections, thrombophlebitis, embolism, infection, ineffectual drainage, acute dilatation of the stomach, heart affections, intestinal obstruction, psychoses and diabetic coma.

Those which threaten life early are: Respiratory failure, heart failure, shock, collapse, hemorrhage.

Those which may be expected later are: Acute dilatation of the stomach, acidosis, thrombophlebitis, embolism, infection, intestinal obstruction, pneumonia, anuria, hiccough, diabetes, coma, delirium tremens, psychoses.

Unusual complications to be kept in mind are: (a) tetanus, (b) parotitis, (c) gas bacilli infection, (d) skin eruptions, mention of which will suffice.

With but few exceptions, this list represents

many factors that may be inimicable to life. In the discussion of preparatory precaution, one must emphasize the value of prevention. By anticipating their development and removing their cause, much suffering and much danger can be assuaged or the individual may be fortified against serious progress of the complication.

The primary danger as the patient leaves the operating room lies in respiratory or heart failure, syncope or collapse.

The mouth and face should be gently sponged free of collected mucus as soon as the mask is removed and the head arranged in a comfortable safe position. Transfer from table to cart is to be accomplished gently and without abrupt change of position. The anesthetist, a trained nurse or intern accompanies the patient to the room, when an equally gentle transfer to a pre-warmed bed is made. In spite of the fact that pitiful examples of hot water burns are common knowledge, thoughtlessness superinduced by excitement incident to a serious turn will result in leisurely repentance. Ordinarily the bags may be removed as the patient enters, but retention of body heat is of vital importance in impending shock. Syncope is prevented by temporary lowering of the head.

A well trained nurse, who is able to prevent asphyxiation and recognize danger signs, remains at the bedside until consciousness has returned. The first postoperative hour is zero hour for the sufferer and a self reliant nurse who cannot be stampeded is invaluable. When operative trauma has been unusually severe and shock is feared, an enema of four ounces of black coffee and two ounces of whiskey retained per rectum proves efficacious. It is a sufficiently diffusible stimulant and bridges the gap until vital forces are relieved of their lethargy and reassume their function.

Then follows the replacement of fluids lost at operation. Ordinarily Murphy's admirable method of rectal drip will suffice. Sixty grams of sodium bicarbonate to the liter of 2 per cent. to 5 per cent. glucose in tap water makes an acceptable proctoclytic medium, furnishing nourishment and fluid when most needed. If more rapid hydration is indicated, distilled water as an axillary seep by hyperdermoclysis or intravenously is used. Saline solution should be used with caution.

The first symptoms of returning consciousness are dull, indefinite pain and nausea. Ether anesthesia virtually replaces the former by several hours of stupor, but increases nausea and vomiting when reflexes are again active. While pain seldom kills, it may be a contributing factor by increasing shock, restlessness and consequently postoperative hemorrhage. Effective control of severe pain for the first 36 hours

is justifiable when no contraindication exists and the agent by which it is accomplished is a most valuable asset in the amelioration of shock and hemorrhage. A full dose of morphin, when indicated, will conserve the vitality that is ordinarily lost during the first postoperative night of pain, restlessness and mental fear. Repetition of the sedative is seldom needed if the first postoperative night has been robbed of its torture. Thirst may be relieved by the various methods of hydration mentioned above. If all fluids by mouth are withheld until the primary period of nausea has vanished, ordinarily four to six hours, hot water may be administered in small frequent doses, gradually increased and graduated to cool and cold as favorably accepted. If the patient is told that ice and water by mouth too early will cause violent vomiting and pain and assured that they are receiving fluids continually they will cheerfully forego the anticipated pleasure in the fear of the penalty until the period of nausea has passed.

(To be continued.)

THE NORMAL HEMOGLOBIN STANDARD.—Russell L. Haden, Kansas City, Mo. (*Journal A. M. A.*, October 28, 1922), urges that all hemoglobinometers should be calibrated in terms of a uniform standard. The ferricyanid method as adapted by Van Slyke, in his opinion, affords the most desirable means of standardization. The ideal standard takes as 100 per cent. the average normal number of grams of hemoglobin per hundred cubic centimeters for each 5 million red cells. The average hemoglobin content of the blood of fifty-two normal persons has been determined with the Van Slyke apparatus to be 15.6 gm. per hundred cubic centimeters for each 5 million cells. All hemoglobinometers should be calibrated with the Van Slyke apparatus on this basis, so that 100 per cent. equals 15.6 gm. per hundred cubic centimeters. It is suggested that readings with this standard be called the normal scale.

DEVELOPMENT AND CORRECTION OF EXTENSIVE CYSTS OF THE MAXILLA.—Hugh W. MacMillan, Cincinnati (*Journal A. M. A.*, November 18, 1922), places especial emphasis on the importance of a knowledge of the anatomy of the periapical regions in the successful treatment of diseases arising from dental infections. The peculiar environment of the superior lateral incisor and superior first bicuspid makes the prognosis of alveolar infections decidedly different from that of the remaining anterior superior teeth. In the correction of the extensive incisor, a knowledge of the principles of prosthesis, combined with those of plastic surgery, enables the operator to restore the part to its original appearance and function.

RIGHT URETERAL CALCULUS SIMULATING ACUTE APPENDICITIS.—A case of right ureteral calculus simulating acute appendicitis is reported by Montague L. Boyd, Atlanta, Ga. (*Journal A. M. A.*, October 28, 1922). This case is of interest because of: (1) the severity of the nausea and vomiting; (2) localized pain in the appendix region; (3) leukocytosis, and (4) absence of pain or tenderness in the kidney, absence of referred pains to the groins and testicle, and lack of urinary symptoms.

**THE JOURNAL
OF THE
Missouri State Medical Association**

AUGUST, 1923.

EDITORIALS

SCHOOL FOR THE BLIND

The Missouri School for the Blind, 3815 Magnolia Avenue, St. Louis, is not so well known among the medical profession of the state as it should be. It is possible that there are physicians in St. Louis who do not know of its existence.

The time is drawing near for the commencement of the fall term of school and it is well to broadcast information about this institution so that physicians over the state may inform those eligible for admittance.

The School for the Blind is a school and a school only. It is not an asylum nor is it a home. School opens the second Thursday in September and closes the second Thursday in June. During this period the scholars are boarded and lodged free, parents being expected to furnish only clothing. Children of good physical condition and mental capacity between the ages of six and twenty years are admitted to the school. All pupils are required to be vaccinated before entering.

It is of interest to know that the school was founded in 1891 by Eli N. Whelan, a man who was almost totally blind. The first oculist member of the board was Dr. Simon Pollak.

The superintendent, Mr. S. M. Green, is a man of the greatest culture and scholarly attainments, combined with great sympathy, love and interest in the welfare of the blind. He has been in this position for a number of years and is thoroughly familiar with all phases of educating the blind. His corps of very efficient teachers is imbued with the same spirit of love and sympathy that permeates the institution.

Training of pupils is carried from the kindergarten through the grades and on through high school. In addition to the regular studies, the pupils are taught one or more of piano, voice, cornet, piano-tuning, wood-working, mop-making, chair caning, basket making, cooking, sewing, carpet weaving, typewriting, machine sewing, knitting and crocheting. By encouragement to participate in chorus singing and in amateur theatricals, the pupils are made to forget their handicap. It is marvelous to see how a shrinking, timid child will develop and respond to this sympathetic training.

It is compulsory now that all blind children

up to fifteen years of age attend the school. The general physicians over the state coming in contact with blind children can do much to bring all blind children into the school.

The general practitioner cannot only bring blind children in contact with the training necessary but he can furnish statistics which may eventually do away with much blindness. If the family history of such cases as those born blind or with diminution of sight from obscure causes occurring in the years of infancy, childhood or early youth is known, it will be an aid to medical science in overcoming this handicap. Such histories should be given to the school physician, Dr. A. H. Hamel, or to the school oculist, Dr. H. D. Lamb. Such information would, of course, be confidential.

We can never hope to know anything definite about the causes of those rather frequent cases of congenital forms of blindness unless the history of the cases is known, that of relatives, of parents and grand-parents. So the purpose of the school for the blind may be two-fold, that of educating those already so afflicted, and a research laboratory to prevent as much blindness as possible in future.

**AN APPEAL FOR INFORMATION ON
MATERNAL WELFARE**

The Committee on Maternal Welfare of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons is anxious to procure accurate information as to the progress which each state is making in the matter of maternal welfare in order to formulate a report for the annual meeting in Philadelphia, in September.

A preliminary programme was published in the issue of the *American Journal of Obstetrics and Gynecology* for June, 1923, which it is hoped may be a suggestion of an outline for national work among all organizations which have a common basic line of endeavor including medical societies, departments of health, and commissions of social workers.

The committee desires a brief synopsis of the results accomplished in every vicinity and most important, if possible, a contrast of the record of the clinics or regions where patients have been privileged to have pre-natal care with the statistics of the community in general where no supervision has been afforded the prospective mothers.

These it is planned to have incorporated into the completed survey to be presented to the Association and to be published in the annual transactions later on. Reports may be sent to Dr. Henry Schwarz, St. Louis; Dr. George W. Kosmack, New York City; Dr. George Clark Mosher, Chairman, Kansas City.

STRATTON D. BROOKS, NEW PRESIDENT, STATE UNIVERSITY

It is with interest that the physicians of the state watch the coming of Dr. Stratton D. Brooks as president of the State University. At this time, with the agitation for the establishment of a four-year course in medicine and the erection of a suitable hospital at Columbia in connection with the addition to the medical school, it is auspicious that Dr. Brooks has done wonders with the medical school of the institution from which he comes, Oklahoma State University.

Dr. Brooks is primarily an educator and his aim is to further education in all lines in all ways possible.

Dr. Brooks is a native of the state, having been born at Everett. His attendance at schools and colleges has been wide and in various parts of the country. He has degrees from Michigan State Normal, Michigan State University, Harvard University, and Colby College. He has been a teacher, a high school principal, a college professor and a college president before coming to our State institution. In few ways could he be better equipped to carry on the work of the state university.

The retiring president, Dr. J. C. Jones, formerly dean of the School of Arts and Sciences, accepted the presidency only temporarily and on condition that he be relieved as soon as possible.

That Dr. Brooks will address himself to the problems of the Missouri State Medical Association pertaining to the education of the future physicians of the state in a way calculated to bring the University into a position to make the best possible use of its facilities is to be confidently anticipated.

HERBERT SPENCER HADLEY, NEW CHANCELLOR WASHINGTON UNIVERSITY

Herbert Spencer Hadley, new chancellor of Washington University, is no new figure to Missourians. He has been in the public eye for many years and always in a favorable light. He is not a native Missourian but he was born in a neighboring state and he has proved his faithfulness to the state of his choice by long and sincere service as its chief executive. He has had wide experience in law, and gained for himself an honorable reputation when prosecuting attorney of Jackson County for his decided stand against all offenders of the law.

Because of failing health, he went to Colorado in 1917, where he became professor of law at University of Colorado at Boulder from which position he comes to Washington University. Few men, either by training or ex-

perience, are as well fitted to hold the chancellorship of Washington University.

DR. NATHANIEL ALLISON TO HARVARD MEDICAL SCHOOL

Dr. Nathaniel Allison, of St. Louis, dean of Washington University Medical School, has resigned and will go to Harvard University as head of the department of orthopedic surgery of the medical school there.

Dr. Allison is a native St. Louisan, and has been dean of the Washington University Medical School for a number of years. He is a graduate of Harvard, and was made Colonel in the Medical Corp during the war, receiving the Distinguished Service Medal for "exceptionally meritorious and distinguished service."

In the resignation of Dr. Allison and his subsequent departure, St. Louis will lose one of its foremost physicians. It is with regret that those who know him see him go and yet it is with pleasure because they know he is advancing and that recognition of his ability is coming to him.

"HUMAN WRECKAGE" AND THE DRUG TRAFFIC

It seems a pitiable thing that one of our favorite screen stars should have to die, to awaken the country to the evils of the drug traffic. In the death of Wallace Reid came the birth of a wonderful determination on the part of his wife to do all in her power to teach the nation the truth about drugs and addicts.

Mrs. Reid has produced a photoplay which presents in striking scenes the ravages of heroin, cocaine, morphine and other habit forming drugs. It is not the sort of play one imagines. It is done in excellent taste and in the least offensive manner.

It leaves one with a firm conviction to do his part in the stamping out of this scourge which is sweeping the country.

It is a play of particular benefit to the physician. It brings to his notice the member of his profession who is unworthy of being called associate, the member who will do anything for money and who will dispense drugs merely for the asking. It may sharpen our eyes a bit so we may be on the lookout for him.

"Human Wreckage" should be shown in your town.

NEWS NOTES

EDWARD BARNETT, of St. Louis, was found guilty in the Court of Criminal Correction of practicing medicine without a license and fined \$200 and costs. He claimed to be a Doctor of Napropathy.

DR. B. C. BERNARD has resigned as superintendent of Koch Hospital, St. Louis, and Dr. Hyman I. Spector, chief resident physician, has been selected to succeed him.

News dispatches report that two Italian scientists, Prof. Giovanni di Cristina and Prof. Giuseppe Carolla have isolated the specific germ of scarlet fever. If this be true, it is a great advancement, but so far no authoritative confirmation has been made.

DR. ROUX, of Pasteur Institute, Paris, recently announced, according to news dispatches before the Academy of Science that a vastly improved method, providing adequate means of halting epidemics, of vaccinating for measles has resulted from the experimentation of Drs. Nicolle and Conseil of Pasteur Institute.

W. H. BRAUN, of St. Louis, who has been general agent for the Medical Protective Company of Ft. Wayne, Indiana, for several years, has gone to Boston to have charge of the company's affairs there. Mr. C. B. Frank, formerly general agent for the company in Iowa, has come to St. Louis to take Mr. Braun's place.

DR. MAZYCK P. RAVENEL, of Columbia, professor of preventive medicine at University of Missouri, has been elected an honorary member of the National Tuberculosis Association at a meeting held recently at Santa Barbara, California, in accordance with a custom of the Association to reward those distinguishing themselves in original researches relating to tuberculosis.

THERE is an unusually good opening in a town of one thousand for an energetic young physician, well equipped and willing to do country practice. It will require a small investment of cash but the outlook is good. The physician now seeking a successor must give up the practice of medicine on account of a physical disability. For full particulars address the Secretary, 3529 Pine Street.

IT has been proposed by Dr. M. A. Bliss to have a "visiting teacher" for St. Louis schools to determine the progress made by children and to ferret out those who have progressed as far as it seems they can and to determine the cause for the retarded progress in such cases. It is thought that a person well versed in psychology and child training could do much to relieve the work of the juvenile court and the psychiatric clinic already established.

OF state-wide and nation-wide importance are the International air races to be held in St. Louis, October 1, 2, 3, in connection with the Forty-Fifth Annual Veiled Prophet's Festivities.

Persons, not only from this country, but from all over the world, are expected and it is forecasted that the attendance will reach into the thousands.

The principal attraction of the race meet will be the Fourth Annual Pulitzer Race, but there are seven other major events of commercial importance, in anyone of which there will be opportunity for practically every type of aircraft to compete.

DR. G. WILSE ROBINSON, of Kansas City, president of the State Association, has recently purchased the Dyer home in Kansas City, for \$40,000. His plan is to convert it into a sanatorium.

The home is constructed from materials assembled from the Victoria Building, headquarters of the British delegation at the Chicago World's Fair in 1893, and from the Alaska, Hoo Hoo, Indian Territory, and Louisiana buildings of the St. Louis Exposition in 1904. It is situated on a forty acre tract.

Dr. Robinson has made no definite plan to remodel the house but plans many interesting features for the use of his patients, one of them being a golf course on the grounds.

The following articles have been accepted by the Council on Pharmacy and Chemistry:

Abbott Laboratories—Amidopyrine—Abbott. Amidopyrine—Abbott Tablets, 5 grains. Epinephrin Chloride Solution—Abbott.

General Chemical Co.—Sofos.

Eli Lilly & Co.—Iletin (Insulin-Lilly). Iletin (Insulin-Lilly) H-10:5 c.c. ampules. Iletin (Insulin-Lilly) H-20:5 c.c. ampules.

Powers-Weightman-Rosengarten Co.—

Sulpharsphenamine Billon—

Sulpharsphenamine Billon, 0.1 gm. ampules.

Sulpharsphenamine Billon, 0.2 gm. ampules.

Sulpharsphenamine Billon, 0.3 gm. ampules.

Sulpharsphenamine Billon, 0.4 gm. ampules.

Sulpharsphenamine Billon, 0.5 gm. ampules.

Sulpharsphenamine Billon, 0.6 gm. ampules.

ACCORDING to the plan mapped out a few weeks ago for the enlarging and improving of St. Louis public hospitals and institutions, an \$85,000 X-ray and radium room is being planned for the City Hospital. Its construction will be under the supervision of Dr. Le Roy Sante, roentgenologist at the hospital. Other improvements will be made at the same time such as the equipping of an eye, ear, nose

and throat room at a cost of \$3,000; and the increasing of the nursing staff from 33 to 50. A method of testing and standardizing the blood of interns at the hospital who are willing to submit to blood transfusion operations when the necessity arises is being devised. Interns will be paid \$25 for the blood used. It is thought that this will do away with a great deal of embarrassment on the part of relatives of patients needing this operation and will also do away with the delay now experienced in handling such cases.

MISCELLANY

TO RESTORE A GOOD MEDICAL LAW

One of the commendable acts of the Missouri house just prior to adjournment was reconsideration of its previous vote by restoring the word "reputable" used in reference to medical schools in the state law, thus giving the state board of health some basis for passing upon the medical colleges whose graduates appear for licenses to practice in Missouri. The senate also has indorsed the bill which would return the important word to the state law.

Two years ago a bill eliminating the word "reputable" and weakening reasonable requirements for medical college graduates became law in Missouri. The measure originated with a medical institution that previously had not received recognition in Missouri because of its low standards for graduation. This school and two others in the state, all belonging to class C medical schools, according to the standards of the American Medical Association, thereby gained the privilege of having their graduates admitted to examination for licenses. These schools made no move to improve their standards, and the state board was left helpless.

The result was to give Missouri a rating in medical education among the lowest of any state in the country. For there are only seven class C, or third class, medical schools in the entire United States, and Missouri has three of those. These Missouri institutions have taken particular advantage of the change wrought by the lowering of medical requirements in Missouri. They have worked, in the state and out, to bring in increased numbers of students, broadcasting the advice that such an opportunity to get into the medical profession as this state was offering was both rare and inviting.

It has been rare, indeed. For the type of medical school that has been allowed to flourish in Missouri in the last two years is not even recognized in forty other states. Hence, the encouragement for an influx of graduates of medical institutions not recognized in other states. Missouri, members of the medical profession held, thus was made a dumping ground for the badly trained practitioner.

Nothing unreasonable had been required of the low-grade medical schools under the law prior to 1921. The low-grade schools in Missouri can raise their standards, as scores of other medical schools of the country have done in recent years. The bill just passed is for the protection of the public.—*Kansas City Star*, 1923.

REGULATING MEDICAL PRACTICE

A bill now before the Legislature gives the state board of health supervision over all practitioners of medicine and surgery, and all practitioners of "lim-

ited" branches of medicine and surgery within the state. It defines the requirements for admission to an examination by the board for license to practice, and provides that it shall be unlawful for any person not now a registered physician to practice medicine or surgery, or to treat the afflicted, without a license from the board. The limited branches of medicine and surgery specifically mentioned include chiropractic, optometry, osteopathy, electrotherapy, suggestive therapy and others. Applicants to practice in any of these branches or in general medicine or surgery would be examined as to their "preliminary" qualifications by an entrance examiner, appointed by the board of health from a list of names submitted by the State Superintendent of Public Schools, and they would later undergo a written examination by the board.

The requirements to examination seem to be fairly adjusted to the necessities of the branch of the profession that the applicant wishes to pursue. Practitioners of general medicine or surgery are required to have a diploma from a medical college with a four years' course of study, including two years in operative and hospital work at the time of graduation. Applicants for a license in osteopathy must have completed a residence course in a school of osteopathy in good repute of not less than three years of nine months each, and must be examined in anatomy, physiology and other subjects, and, by a special committee of osteopaths, in the principles and practices of osteopathy. Similar requirements apply to the other limited branches of medicine or surgery, differing to some extent in accordance with the nature of the practice to be examined.

The measure is an attempt to raise the standards of the medical profession in all its branches and to protect the public from the ineffectual and often seriously injurious practice of quacks. There is nothing in it to prevent any applicant who is actually qualified to become a reliable practitioner, whether in general medicine or surgery or in the so-called limited branches, from receiving a license. But it does prevent persons who have little or no real medical knowledge from falsely assuming the dignity of the profession and treating cases in which such knowledge is indispensable, and thereby it acts for the public safety. The intent of the bill is not to restrict needlessly qualified persons from practicing, whatever the branch of medicine, but only those whose qualifications are pretended. Any malpractice is costly, but malpractice in the medical profession may cost the unknowing health or even life; and this is a reason for the support of this attempt to bring all branches of the profession under the regulation of the state board of health.—*St. Louis Globe-Democrat*, 1923.

CHIROPRACTOR LIABLE FOR CARE, SKILL AND KNOWLEDGE IN DIAGNOSIS

Chiropractic quibbling may not avail a chiropractor in Wisconsin, who through negligence, ignorance or unskillfulness fails to diagnose the disease from which his patient is suffering, according to a decision of the supreme court of Wisconsin, April 3, in the case of *Kuschler v. Volgmann* and in diagnosing a case, a chiropractor must exercise the care and skill that is usually exercised by a recognized school of the medical profession. The fact that chiropractors abstain from the use of words like "diagnosis," "treatment" or "disease," said the court, is immaterial. What they hold themselves out to do and what they do is to treat disease, and the substitution of words like "analysis," "palpation" and "adjustment" does not change the nature of their act.

The plaintiff, suffering from nausea, nervousness and headache following a head injury, applied to the

defendant, a chiropractor, in September, 1918, for relief and cure. The chiropractor, believing that the nervousness and headache were due to a derangement of the stomach, treated him accordingly. Treatment proved unavailing, and the chiropractor advised the plaintiff, in May, 1919, to go West, in the hope of relief. The plaintiff did so, but the headaches and dizziness, from which he continually suffered, became more severe, and finally he became at times blind. September 10, 1919, the plaintiff presented himself for treatment at a hospital in Chicago, and there his malady was immediately diagnosed as a brain tumor. An operation was done simply to relieve the intracranial pressure, for because of the long time the tumor had been allowed to grow, it was impossible to remove it.

The chiropractic defendant was charged with responsibility because of alleged negligence and want of understanding and skill. He demurred to the declaration, on the ground that one who treats the sick and injured is entitled to be judged according to the principles and methods employed by the school or sect to which he belongs, and he claimed that he had treated the plaintiff according to the methods used by chiropractors. The demurrer was sustained in the lower court. On appeal, the supreme court of Wisconsin said that had the complaint been grounded on neglect or unskillfulness in treatment only, the action of the trial court would have been correct. The complaint alleged, however, neglect or unskillfulness in diagnosis. While the duty of diagnosis is ordinarily assumed and performed by licensed physicians, it may be assumed by others, and the defendant having assumed to perform that duty was bound to exercise the care and skill in so doing that is usually exercised by a recognized school of the medical profession. The supreme court, therefore, overruled the demurrer and remanded the case to the trial court for further proceedings.—*Journ. Am. Med. Assn.*

OTITIC ABSCESS OF THE CEREBELLUM.—The case reported by C. F. Yerger, Chicago (*Journal A. M. A.*, January 27, 1923), is of especial interest, (1) because of the difficulties it shows in diagnosis (some cases will give few, if any, localizing signs); (2) because a cerebellar abscess was found on surgical exploration of the posterior cranial fossa, and (3) because the necropsy report was added to the clinical record, thereby making the case record complete.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL, FOR 1923

(UNDER THIS HEAD WE LIST THE SOCIETIES WHICH HAVE PAID THE STATE ASSESSMENT FOR ALL THEIR MEMBERS)

- Chariton County Medical Society, December 31, 1922.
- Webster County Medical Society, January 6, 1923.
- Madison County Medical Society, January 15, 1923.
- Cape Girardeau Medical Society, January 23, 1923.
- Camden County Medical Society, February 1, 1923.
- Clark County Medical Society, March 5, 1923.
- Perry County Medical Society, March 27, 1923.
- Vernon County Medical Society, April 7, 1923.
- Schuylerville County Medical Society, May 3, 1923.

CLAY COUNTY MEDICAL SOCIETY

The Clay County Medical Society held its annual June festival session at high noon at Kearney, June 25. Members, their wives and children enjoyed a picnic luncheon of country cured ham, roasts, fried chicken, angel-food cake and ice cream and lemonade with lemons in it served cafeteria style from a table forty feet long placed under the beautiful maples of the Baptist Chapel lawn.

After luncheon, a picture of the group was taken. The women then spent the afternoon in playing games, and decided that this affair be made an annual event with the wives attending to the refreshments and the local committee arranging for the grounds and other necessary details.

The scientific session was opened by Dr. H. Rowell, of Kearney, who introduced an interesting clinical case, a cortical lesion with progressive paralysis, aphasia, agraphia, etc. The patient was thoroughly examined and the clinical symptoms fully discussed.

Other topics brought up were insulin in diabetes, vaccine therapy, protein intoxication in hypertension, and the technician who "fell off the tree before he got ripe."

Some decisive action will be taken at our next meeting in August on the question of how far a delinquent in dues and affiliation may carry on and



Group of Clay County members and their families at the June festival meeting at Kearney.

still maintain good standing. Our society has about 35 members and it is possible for one member to keep the whole society off the roll of honor for a whole year by culpable neglect.

Dr. W. C. Hamilton, of Kearney, was unanimously elected and welcomed to full membership.

J. J. GAINES, Secretary.

BOONE COUNTY MEDICAL SOCIETY

On July 12, the Boone County Medical Society was host to the Audrain and Callaway County Medical Societies. During the afternoon, Dr. J. E. Stewart of St. Louis, conducted an orthopedic clinic, and Dr. Walter Baumgarten, of St. Louis, read a paper on "Non-Tuberculous Complications of the Chest" which was illustrated by lantern slides. Following this interesting program, the staffs of the Audrain and Callaway and Boone County General Hospitals, with their trustees and superintendents, met for a round table discussion of hospital problems and management. At six-thirty, an informal dinner was served at the Columbia Country Club. After the dinner, speeches by representatives of the visiting and local societies were made. About sixty members were present.

WILLIAM O. FISCHER, M.D., Secretary.

CLINTON COUNTY MEDICAL SOCIETY

The Clinton County Medical Society met in its regular session at the Midland Hotel at Cameron at 11:00 a. m., June 8, with Dr. C. H. Risley in the chair. The minutes of the last meeting were read and approved. Literature concerning application for commission in the Medical Reserve Corps was distributed.

Dr. F. M. McCallum, of Kansas City, gave a very able and interesting talk on "The Diagnosis and Treatment of Hypertrophy of the Prostate." Discussion by the members followed. The society voted its entire appreciation of Dr. McCallum.

Luncheon was served in the hotel dining room followed by a smoker. At this time, Dr. J. T. Kennedy, of Lathrop, presented a paper on "Influenza, Its Treatment and Sequelae," gleaned from a personal experience with the subject and the result of many years' observation. The subject was thoroughly discussed.

Those present were: Dr. F. M. McCallum, Kansas City; Dr. J. T. Kennedy, Lathrop; Drs. R. W. Rea and P. M. Steckman, S. D. Reynolds, and C. W. Chastain, Plattsburg; and Drs. P. H. Stockfleth, O. A. Gilliland, C. H. Risley, M. L. Peters, and L. A. Wilson, Cameron.

The next meeting will be held in Plattsburg in September. The program will be published in local papers and a large attendance is looked for.

L. A. WILSON, M.D., Secretary.

MONTGOMERY COUNTY MEDICAL SOCIETY

The Montgomery County Medical Society held a meeting at Mineola Springs on Tuesday, July 17. Members and visitors and their families were present and brought with them well filled baskets of lunch. Luncheon was spread on the cool and shady lawn adjoining the Springs.

After luncheon, Dr. Anthony B. Day, of St. Louis, addressed the society on "The Prevalence of Goiter in This Country and the Recent Work Which Shows That It Is a Controllable Condition." This was a very interesting subject to the physicians and laymen present. After the discussion which followed, the

society gave Dr. Day a rising vote of thanks in appreciation of his address.

Those present were: Drs. Pierson, Turner, Lewellen and Hetherland, of Louisiana; Drs. Harrison and Brashear, of Mexico; Drs. Leslie and Ranselbach, of Rhineland; Dr. Hereford, of Wellsville; Dr. Jones, of Jonesburg; and Drs. Muns, Nowlin, and Menefee, of Montgomery.

BUELL F. MENEFEE, M.D., Secretary.

RANDOLPH COUNTY MEDICAL SOCIETY

At the regular meeting of the Randolph County Medical Society, held June 12, 1923, there were 11 members present, with four visitors. Dr. Barnhart gave a very interesting paper covering the general phase of blood pressure. Dr. Fleming read a paper on differential diagnosis in hypertension with special emphasis on laboratory findings.

Those members who were present were Drs. Cuppaidge, Mitchell, Clapp, Bazan, Streeter, Barnhart, Fleming, Dutton, McCormick, and Wood. The visitors were Drs. Stokes of Macon, Brummall of Salisbury, Huber of Wabash Hospital, Moberly, and Davis of Monroe County.

Meeting of July 10

The regular meeting held July 10, was one of the best of the year, notwithstanding the hot weather. Four of our members are on their vacations and our President, Dr. Cuppaidge, was in Kansas City, but 10 members answered roll call and there was one visitor.

Dr. Ragan gave a splendid talk on sore throats and a general discussion followed.

A fine spirit of fellowship prevailed and it was decided that the next meeting be held in Higbee in August. Dr. G. M. Nichols of Higbee was appointed a committee of one on arrangements.

Those present were Drs. Mitchell, Streeter, Bazan, McCormick, Ragan, Fleming, Lawrence, Barnhart, Davis and Dixon. Dr. Powell of Huntsville, who had just completed an internship at the General Hospital in Kansas City, was visiting.

C. H. DIXON, M.D., Secretary.

SALINE COUNTY MEDICAL SOCIETY

The Saline County Medical Society met on June 5, at Marshall, for the first time this year. Immediately after luncheon, which was served by the wives of Marshall members, the meeting was called to order by Dr. S. P. Simmons. Election of officers followed when Dr. W. N. Bickford, of Marshall, was elected president and Dr. R. W. Kennedy, of Marshall, was elected secretary-treasurer. Drs. C. L. Lawless, of Marshall, S. Weltmier, of Marshall, and L. S. James, of Blackburn, were elected on the Board of Censors.

Drs. Fred A. Stahl, of Malta Bend, A. T. Coffman and Silas Weltmier, of Marshall, were admitted to membership.

Several short talks on the new hospital, to which the society subscribed about \$400 for the equipping of some department, were made. Drs. Hall and Harrison, members of the hospital board, extended an invitation to the profession of Saline and adjoining counties to make use of the hospital.

Meeting of July 10

The regular meeting of the Saline County Medical Society was called to order by the president, Dr. Bickford, at the John Fitzgibbons Memorial Hospital, July 10, with 20 members present.

Drs. Harry Jones and W. A. Shelton, of Kansas

City, made short talks on the benefits to be gained from the new hospital.

Dr. D. F. Manning, of Marshall, made a short talk on the history and clinical application of insulin. Discussion by Drs. Aiken, of Marshall, and Jones, of Kansas City, followed.

The wives of members of the county society have formed an auxiliary and will serve luncheon at each regular meeting.

ROBERT W. KENNEDY, M.D., Secretary.

WEBSTER COUNTY MEDICAL SOCIETY

The Webster County Medical Society held its quarterly meeting at Seymour, June 20, with seven members and one visitor present. Minutes of the last meeting were read and approved.

Dr. J. S. Sayers asked for and was given a transfer to Greene County Medical Society. Dr. W. H. Bolinger, of Seymour, was elected president for the unexpired term of Dr. Sayers; Dr. M. Highfill, of Marshall, was elected vice president to fill the unexpired term of Dr. T. S. Bruton, who was given a transfer to Greene County Medical Society.

Drs. M. G. Roberts and M. Highfill reported a very complex case which was discussed freely but of which no diagnosis was made.

The Society voted to hold its next meeting at Marshfield, September 19.

JOHN R. BRUCE, M.D., Secretary.

BOOK REVIEWS

MANAGEMENT OF THE SICK INFANT. By Langley Porter, B.S., M.D., M.R.C.S. (Eng.), L.R.C.P. (Lond.). Professor of Clinical Pediatrics, University of California Medical School, etc., and William E. Carter, M.D., Assistant in Pediatrics and Chief of Out Patient Department, University of California Medical School, etc. Illustrated. C. V. Mosby Company. St. Louis. 1922. Price, \$7.50.

This volume is unique in English pediatric literature. Ostensibly limited to a discussion of the management of the sick infant, it has, in reality, more of real pediatrics in it than many books of much wider scope. The title is misleading, for it suggests a description of the feeding, care and treatment of the sick infant; but the book contains in addition much common sense philosophy and many diagnostic hints which should stimulate the reader to further study. For example, the treatment of convulsions is preceded by an eight-page discussion of the various causes of spasms. Again, nearly 70 pages are devoted to a discussion of diseases of the nervous system, much of it in the nature of brief descriptions of the commoner types of disorders, diagnosis, localization of lesions, etc. One of the most important chapters is that descriptive of various methods of diagnosis and treatment common in pediatric practice, such as lumbar and ventricular puncture, cisterna puncture, the injection of arsphenamine, intubation, intraperitoneal injections, heliotherapy and similar topics.

It is but natural that a first volume of this type should omit some of our pet remedies and include others of which we are not so fond, but the text is remarkably free of objections in this regard. It would seem, however, that no discussion of the treatment of tetany could be complete without some mention of the brilliant and sure results following the injection of magnesium sulphate in controlling the convulsions and eliminating the laryngospasm. But why find fault because of a few such omissions when

the book contains so much excellent material that it is sure to prove invaluable to the general practitioner and the young man about to enter the field of pediatrics!

The paper is excellent, the type and illustrations clear and the text remarkably free of printer's errors. A large sale can be safely predicted. T. C. H.

DISEASES OF THE EAR, NOSE AND THROAT. Medical and Surgical. By Wendell Christopher Phillips, M.D. Professor of Otology, New York Post-Graduate Medical School and Hospital, etc. Sixth Revised Edition. Illustrated with 578 half-tone and other text engravings, many of them original; including 37 full-page plates, some in colors. F. A. Davis Company, Philadelphia. 1922. Price, \$8.00.

The author in presenting the sixth revised edition of his textbook on diseases of the ear, nose and throat has brought this work up to a very commendable standard of modern otolaryngology. The illustrations throughout are complete and not only in themselves give a graphic picture of ear, nose and throat conditions, but together with the text should give a student a comprehensive knowledge of the subject. Particular stress has been given in this edition to subjects hitherto only briefly mentioned in textbooks of this character, such as the chapters on suspension laryngoscopy, bronchoscopy and esophagoscopy. Highly instructive also are those chapters dealing with the present methods of examination of pus and blood in purulent otitis media and its complications, and the subject matter of diphtheria, syphilis and asthma together with allergy and pollen therapy in hay fever. The reference to social and community service work for the deaf gives the necessary perspective to the student's comprehension of otology hitherto little appreciated. The sequence of the subject matter of this work is unfolded in such a manner that the student cannot fail to retain a logical understanding of otolaryngology. Also, the book contains as much if not more accurate information than is usual in books covering so large a field.

I. D. K. Jr.

HELIOTHERAPY. By a Rollier, M. D. Medical Director of the Institutions for Heliotherapy, Leysin; etc. With the Collaboration of A. Rosselet, D. Sc., M. D., H. J. Schmid, M. D., and E. Amstad, M. D. With Forewords by Sir John Henry Gauvain, M. A., M. D., M. R. C. S., L. R. C. P. and Caleb Williams Saleeby, M. D., F. R. S. Henry Frowde and Hodder & Stoughton, London. Oxford University Press, 35 W. 32d Street, New York. 1923. Price \$8.00.

The author points out that heliotherapy, correctly understood and applied, fulfills the highest demands of orthopedics and conservative surgery, thereby avoiding mutilations and to a large extent maintaining articular function and permitting a complete individual to earn a living—in which I heartily concur.

The work contains numerous photographs, radiograms and tables and will be found interesting as well as invaluable to the student, practitioner and specialist. The author emphasizes general treatment and fresh air and frequently warns his reader that caution and judgment must prevail in the successful use of the remedy.

Particular attention is called to the fact that in spite of its simplicity, heliotherapy demands great attention to detail and constant supervision with modifications in certain climates although allowing for graduated progression and individualization.

The remedy has a wide field of usefulness which in a large measure the writer can vouch for even in this climate, and its detailed use in all forms of bone

tuberculosis, tuberculous adenitis, genito-urinary tuberculosis and all forms of eye tuberculosis are worthy of anyone's investigation. It is invaluable in rickets (Vienna) and various blood diseases such as anemias and pseudo-leukemias.

So phenomenal are some of his results that the inexperienced are apt to doubt his brilliant results, but those familiar with the late Dr. Shortle's work at Albuquerque, New Mexico—the most ardent advocate in this country—can testify to the great truths Rollier has enunciated. Few, if any, tuberculous glands in the neck will be submitted to disfiguring operations, once we adopt and give heliotherapy a fair trial.

With its recent wide use in rickets, who two years ago could have guessed that it would cure this disease rapidly, certainly and costlessly, as evidenced by increasing the quantity of phosphorus in a baby's blood in a fortnight?

Chapter VII, Physical and Biological Study of Light, by A. Rosselet, is a scientific discussion on the various phases relating to sun-rays. Chapter VIII, by H. J. Schmid, on Radiological Diagnosis, and Chapter X, on Heliotherapy of Non-Tuberculous Diseases, are well covered, and the last chapter showing that an increase of 34 per cent. Hb., can take place, is convincing of the utility of heliotherapy as a blood tonic, especially after pigmentation of the skin has taken place.

The language is convincing yet simple; and the remedy beneficial and enjoyable but not fool-proof; and carefully graduated use, after familiarization with the remedy, should be the rule or considerable and even irreparable damage may result. W. R. H.

NEW AND NONOFFICIAL REMEDIES. 1923, containing descriptions of the articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association on Jan. 1, 1923. Cloth. Price, postpaid, \$1.50. Pp. 415+XXXVI. Chicago: American Medical Association, 1923.

The progressive, up-to-date physician cannot dispense with the newer remedies, proprietary and non-proprietary. Yet he can neither select them on the basis of the manufacturers' claims alone, nor devote his patients to experiments while he tries out those claims.

New and Nonofficial Remedies is the publication of the Council on Pharmacy and Chemistry through which this body annually presents the American medical profession with disinterested, critical information about the proprietary medicines which are offered to the profession, and which the Council deems worthy of recognition. In addition to the descriptions of proprietary preparations, the book contains descriptions of those nonofficial remedies which the Council deems deserving of consideration by the profession.

A valuable feature of the book is the grouping of preparations in classes. Each of these is introduced by a general discussion of the group. Thus the silver preparations, the iodine preparations, the arsenic preparations, the animal organ preparations, the biologic products, etc., each is preceded by a general, thoroughly up-to-date discussion of the particular group. These general articles compare the value of the products included in the group with similar pharmacopeial and other established drugs which it is proposed that these proprietary preparations shall supplant.

A glance at the preface of this volume shows that the book has been extensively revised. In fact each edition of New and Nonofficial Remedies is essentially a newly written book, brought up to date by those who speak with authority on the various phases of therapeutics.

Physicians who wish to know why a given proprietary is not described in New and Nonofficial Remedies will find the References to Proprietary and Unofficial Articles not found in N. N. R. of much value. In this chapter (in the back of the book) are given references to published articles dealing with preparations which have not been accepted.

New and Nonofficial Remedies should be in the hands of all physicians who prescribe drugs. The book contains information about the newer *materia medica* which cannot be found in any other publication.

The book will be sent postpaid by the American Medical Association, 535 North Dearborn Street, Chicago, on receipt of one dollar and fifty cents.

INFLAMMATION IN BONES AND JOINTS. By Leonard W. Ely, M. D., Associate Professor of Surgery, Stanford University. 144 illustrations. Philadelphia and London. J. B. Lippincott Company. 1923. Price \$6.00.

Bibliographically this book is unusually good. Ideas throughout are very clearly expressed. Any-one doing bone surgery should certainly read his "General Considerations" even though the author may express some ideas that remain to be proven. The many important conditions considered and the definite ideas expressed in the limited number of pages together with the reliability of the author make them well worth while.

The pathology is an unusually strong feature throughout the book, and I think makes the book very valuable. The practical value of the book would be increased if more of his pathology were illustrated by radiographs rather than microscopically. The treatment he gives is accurate and understandable.

M. L. K.

TEXT BOOK OF PEDIATRICS. Edited by Professor E. Feer, Director of the University Children's Clinic, Zurich. Translated and edited by Julius Parker Sedgwick, B.S., M.D., Professor of Pediatrics, University of Minnesota Medical School, and Carl Ahrendt Scherer, M.D., F.A.C.P., Duluth, Minnesota. 262 Illustrations. First edition in English. Philadelphia and London. J. B. Lippincott Company. 1922. Price, \$8.50.

Feer's *Lehrbuch* in which some eight or nine German and Austrian pediatricians collaborated has long been familiar to American pediatricians and those who studied in Europe some ten years ago. The present first edition in English is translated and edited by the late Prof. Sedgwick, of Minnesota, assisted by a group of some fifteen American pediatricians. The principle of the original book in which each author wrote and was responsible for his individual subject is of value. While the book was by no means a complete system, the majority of the monographs were excellent and gave a short, clear presentation of the German-Austrian school.

There is a very fundamental question at issue as to the value of translating a book of this type. If the field of the book is for the specialist and teacher of pediatrics it fills no real need, as the German edition is available for their use and they are capable of editing for themselves. If, however, the book is intended for the American medical student or practitioner in general it must pass a much stricter scrutiny. We find that, although the translation is fairly complete and adequate, much of the editing is remarkable. Thus, one finds in some sections statements directly opposite to those made in the same paragraph. Referring this back to the original text one finds an exact translation which has been added to by the editor, but this addition is printed as a part of the main paragraph without any notation or means

of knowing that it is an editorial note or change. Certainly nothing could be more confusing to hand to a student or practitioner. Furthermore, much material is printed that does not coincide with the American pediatric teaching of today. Pediatric teaching has advanced much more rapidly in America in the last ten years than it has in Germany or Austria. For information as applied to diseases of children in America or as a guide book it cannot compare with such American books as Griffith or Holt. A book with the original text written by a group of ten or fifteen American pediatricians following the same general plan as Feer's would have been a book of far greater value. Unless a European book contains something of real value to the American practitioner at large it is far better left available in its original text.

B. S. V.

VERSION IN OBSTETRICS. By Irving W. Potter, M.D. St. Louis: C. V. Mosby Co. Illustrated. 138 pp.

This is a work intended primarily for the skilled obstetrician, setting forth Potter's technique of internal podalic version and his own personal indications. The use of version is very old, and the author has picked from these older teachers the salient points that make up his technique. He differs only in that it is done under aseptic surroundings and with all the modern surgical cleanliness.

To advocate the use of version in every case of labor is wrong; to say it is an easy and safe method and that everyone can perform version, is also wrong. But when a version is indicated the Potter method, in experienced hands, is the easiest, quickest and safest method of delivering the child.

The style of the book is simple and one is impressed by the candor of the author. The illustrations are good on the whole, but would confuse a novice in obstetrics were he to try and pattern his work from some of the illustrations taken from actual photographs.

This work has a place in obstetrics that has long been vacant and, while advocating a very radical procedure, will be the means of teaching us to do an internal podalic version in a manner that hitherto has caused numerous failures.

L. D.

THE FORM AND FUNCTIONS OF THE CENTRAL NERVOUS SYSTEM. By Frederick Tilney, M.D., Ph.D. Professor of Neurology, Columbia University, etc., and Henry Alsop Riley, A.M., M.D., Associate in Neurology, Columbia, etc. Foreword by George S. Huntington, Sc.D., M.D., Professor of Anatomy, Columbia University. 591 figures containing 763 illustrations of which 56 are colored. New York. Paul B. Hoeber. 1923. Price, \$12.00.

This volume is an improvement over the first edition which was also an excellent work. The arrangement of the material, style, and the publication is all that one could wish. The reader's attention is called particularly to an excellent glossary or vocabulary, a fine arrangement of references listed by anatomical divisions, in addition to a complete index.

The physician who wishes to make neuro-pathological localizations must have a fair conception of normal neural anatomy. He must know something of the neuron centers and the main neural pathways in the brain and spinal cord. This work will aid the reader along this line. Possibly the general practitioner might consider the work too ponderous, but I believe that he can usually master it with the proper application.

Phylogeny and ontogeny in their practical application have not been neglected. The subjects are quite important in the studies of the normal and pathological central nervous system. To illustrate both the gross and especially the minute anatomy, many fine illustrations appear. Most of these are taken

from authorities, but there are many original ones. It is interesting to note that a large number of illustrations bearing on embryology are copied from the works of the famous neural embryologist, His. Metamerism and dermatomes have been given considerable attention and justly. There are some good illustrations for these topics. Technical terms are used to describe a large number of forms of sensation.

Possibly one adverse criticism might be brought forth, considering the title of the work, namely, that undue attention has been given to the anatomy, both gross and microscopical, rather than to physiology and its practical use in diagnosing diseases of the central nervous system. However, any physician with a certain amount of knowledge of physics, chemistry, and general physiological laws can determine or infer functions if he possess a good knowledge of neural anatomy. Certainly the work can be commended to neurologists, and probably to a great many general practitioners.

A. L. S.

THE PRACTICE OF MEDICINE. By A. A. Stevens, M.D., Professor of Applied Therapeutics in the University of Pennsylvania, etc. Octavo of 1106 pages. Philadelphia and London: W. B. Saunders Company, 1922. Cloth, \$7.50 net.

This is perhaps the best one volume practice of medicine which has come to our notice in recent years. It is well written, concise and thoroughly up to date. All matters not generally accepted and still the subject of controversy are omitted from the text, but everything of real value and essential to the practice of medicine is included. A bibliography is inserted at the foot of each page for the convenience of those who desire more light on any special phase of certain diseases. The description of the various diseases is clear and the subject of differential diagnosis is perhaps one of the strongest features of the book. As a rule the treatment outlined is good and in keeping with the best practice of the day. The book is evidently intended for ready reference by the advanced student or busy practitioner and can be recommended as a reliable guide in the practice of medicine.

L. H. H.

OPHTHALMOSCOPY, RETINOSCOPY AND REFRACTION. By W. A. Fisher, M.D., F.A.C.S., Professor of Ophthalmology, Chicago Eye, Ear, Nose and Throat College, etc. With 248 illustrations including 48 colored plates. Published by W. A. Fisher, M.D., F.A.C.S., 31 North State Street, Chicago, Ill. 1922. Price, \$4.00.

A small book of practical use for the beginner in ophthalmology. Commendable is the effectual method for learning the use of the ophthalmoscope with the schematic eye, clearly and definitely described, with emphasis on the important factors. There are 24 colored plates of normal and diseased fundi, detachable for mounting and use in the schematic eye. This method is a real help in learning the technic of ophthalmoscopy. Short descriptions, necessarily sketchy in so small a book, of the different pathological conditions and their treatment are given. The remaining chapters, on Optical Principles, Applied Refraction, Heterophoria, Retinoscopy, and Prescription Writing are instructive and of a character to incite further study in the more comprehensive textbooks.

R. J. C.

THE BIOLOGY OF DEATH. By Raymond Pearl, The Johns Hopkins University. Being a Series of Lectures Delivered at the Lowell Institute in Boston in December, 1920. Philadelphia and London. J. B. Lippincott Company. 1922. Cloth, \$2.50.

This book of 275 pages consists of a series of lectures delivered at the Lowell Institute. The chap-

ters on general biology are of little interest to the average physician. The main object of the book apparently is to indicate that heredity is the chief factor in longevity. Although the arguments and statistics adduced to prove this contention seem convincing, the influence of environment and preventive medicine are not given proper consideration.

The book is especially recommended to those who are interested in life insurance work or in public health problems.

P. T. B.

NURSERY GUIDE FOR MOTHERS AND NURSES. By Louis W. Sauer, M. A., M. D. Senior Attending Pediatrician, Evanston Hospital, Chicago; etc. Illustrated. C. V. Mosby Company, St. Louis. 1923. Price \$1.75.

This is a small book of 188 pages containing some useful illustrations. The chapters consider briefly the general care, development and nursing of the infant, the handling of the premature infant, the feeding of artificial food; fifty pages are devoted to the nutritional disturbances of the artificially fed infant, facts about common ailments and care of the sick infant. The last part of the book contains a list of poisons and antidotes, and several pages with weight and growth blanks.

The book is well written, easily understood and contains no superstitions. The knowledge gained by becoming familiar with facts such as this book contains will be a good foundation for any nurse or mother, and will be handy for reference. F. C. N.

DISEASES OF THE GUMS AND ORAL MUCOUS MEMBRANE. By Sir Kenneth Goadby, K. B. E., M. R. C. S., D. R. C. P., D. P. H. (Cantab.) Lecturer on Bacteriology of the Mouth, Dental Department, University College Hospital, etc. Henry Frowde and Hodder & Stoughton, London. Oxford University Press, New York. 1923. Price \$14.00.

A comprehensive text-book on this subject has been greatly needed for medical and dental students, as well as medical and dental practitioners. In this work which admirably fills this need, the author has discussed in a very satisfactory manner all the important diseases common to the gums and oral mucous membrane as well as the oral manifestations of systemic diseases.

Diagrams, drawings, and photographs (both macroscopic and microscopic) are used to illustrate the subject matter.

The chapters are well arranged for teaching and one of the most commendable features of the book is the exhaustive index of references which follows each chapter. V. L.

THE TRUTH ABOUT MEDICINES

NEW AND NONOFFICIAL REMEDIES

HOROVITZ PROTEIN SUBSTANCE No. 10.—The composition of Number 10 Protein Substance for syphilis of the Horovitz Biochemic Laboratories is essentially secret. The claims made are unwarranted and may lead physicians to use the product unwisely. A. S. Horovitz, president of the Horovitz Biochemic Laboratories, was referred to in connection with the asserted cancer cure "Autolysin" (The Horovitz-Beebe Treatment for Cancer, *Jour. A. M. A.*, July 24, 1915, p. 336). Later he was connected with the Wm. S. Merrell Co. and appears to have been responsible for this firm's line of "Proteogens" which the Council on Pharmacy and Chemistry declared inadmissible to New and Nonofficial Remedies in 1919. The claims advanced for the products mar-

keted by the Horovitz Biochemic Laboratories bear a striking resemblance to those advanced for the Merrell Proteogens. As in the case of the Proteogens, the Horovitz Laboratories have a list of "Protein Substances" each of which is claimed to be more or less specific against a given disease or condition. (*Jour. A. M. A.*, January 6, 1923, p. 54.)

PRESENT STATUS OF INSULIN.—The investigators of "Insulin"—the new pancreatic extract proposed for the treatment of diabetes—have applied for a patent on the product in Canada, United States and Great Britain. The patent for Canada and the United States has been tendered, when granted, to the University of Toronto. The University proposes to safeguard the product against commercial exploitation and to ensure the marketing of a standardized product. From the present indications it is hoped that the experimental period will be ended during the first half of 1923, so that the product will become available. Dr. McLeod believes that "Insulin" will never entirely replace careful dietary regulations, but that it is of undoubted value in assisting the weakened power to metabolize carbohydrates.

It is to be hoped that the University of Toronto will be able to control the advertising claims and methods of marketing of the product. (*Jour. A. M. A.*, January 6, 1923, p. 36.)

MORE MISBRANDED NOSTRUMS.—The following products have been the subject of prosecution by the federal authorities charged with the enforcement of the Food and Drugs Act: C. J. C. Regulator (C. J. Czarnecki), containing iron chlorid, a small amount of plant material, a trace of oil of tansy and alcohol. C. J. C. Liniment (C. J. Czarnecki), containing camphor, menthol, chloral hydrate, ether, ammonia water and alcohol. Allan's Red Wash and Sandalwood Emulsion Compound (Allan-Pfeiffer Chemical Co.): Allan's Red Wash (Allan-Pfeiffer Chemical Co.), containing zinc sulphate, boric acid, a phenol, eucalyptol, a trace of alkaloid and water and Sandalwood Emulsion Compound (Allan-Pfeiffer Chemical Co.), containing santal oil, mineral oil, methyl salicylate, copaiba, a small amount of magnesium and calcium salts and water. Parrott Mixture (Allan-Pfeiffer Chemical Co.), consisting of an emulsion of turpentine oil, methyl salicylate, camphor, copaiba, gum and water. Parrott Sexual Pills (Allan-Pfeiffer Chemical Co.), containing strychnin and a compound of iron and phosphorus. Am-O-Lox Ointment (Am-O-Lox Co.), consisting essentially of zinc oxid, sulphur, phenol, methyl salicylate and a small amount of dye in a base composed of petrolatum and paraffin. Am-O-Lox Prescription (Am-O-Lox Co.) consisting essentially of glycerin, carbolic acid, salicylic acid, methyl salicylate, alcohol, water and coloring matter. Vigeron (Sydney Ross Co.), sugar-coated pills containing compounds of iron, zinc, manganese, arsenic, phosphorus and strychnin (*Jour. A. M. A.*, January 6, 1923, p. 53).

ANTIBERIBERI VITAMIN CONCENTRATE-METZ.—The Council on Pharmacy and Chemistry reports that the Metz Laboratories have requested the acceptance for New and Nonofficial Remedies of Antiberiberi Vitamin Concentrate-Metz. The firm supplied adequate information in regard to the process whereby the product is obtained, and has presented evidence to show that the potency of the product is controlled by adequate animal tests. The firm, however, presented no proof to indicate that the product is of value therapeutically in human beings, and hence it could not be admitted to New and Nonofficial Remedies. The firm wished to make available to students and investigators of nutrition a product which is claimed to be antineuritic (antiberiberi) when fed to pigeons. It increases the food intake of rats fed on substance deficient in vitamin B and

causes increased weight, but not to the same extent as does the vitamin B (according to McCollum's nomenclature). The Council deemed that from a scientific standpoint Antiberiberi Vitamin Concentrate-Metz is suitable for study, suitable for animal experiments and for controlled experiments on man, and hence authorized publication of a preliminary report.

Antiberiberi Vitamin Concentrate-Metz is prepared from brewer's yeast.

The vitamin extract is standardized so that 0.065 gm. shall represent the antineuritic potency of 10 gm. of freshly pressed brewers' yeast. The product is marketed in the form of powder tablets, and solution (1 c.c. containing the antineuritic potency of 10 gm. freshly pressed brewers' yeast). (*Jour. A. M. A.*, December 13, 1922, p. 106.)

CULTURE-LAC OMITTED FROM N. N. R. AND OPTOLACTIN NOT ACCEPTED.—Culture-Lac is described in New and Nonofficial Remedies, 1922, as a culture of *Bacillus bulgaricus* manufactured by the Geck Laboratories, New York. The Special Pharmacal Co., Inc., Buffalo, N. Y., advised the Council on Pharmacy and Chemistry that it now owned Culture-Lac. The product now marketed, however, is not the preparation described in New and Nonofficial Remedies as Culture-Lac, but is said to be a culture containing *Bacillus acidophilus* and *Bacillus bulgaricus*. The Council directed that the Culture-Lac of the Geck Laboratories be omitted from New and Nonofficial Remedies because it is off the market. The Council declared the Culture-Lac of the Special Pharmacal Co., Inc., to be inadmissible to New and Nonofficial Remedies, (1) because there is no acceptable evidence for the administration of a mixture of *B. bulgaricus* and *B. acidophilus*, and (2) because the preparation was marketed with unwarranted therapeutic claims.

Optolactin is the name applied by Fairchild Bros. and Foster to a tablet said to contain mixed cultures of *B. bulgaricus* and *B. acidophilus*. The Council on Pharmacy and Chemistry declared Optolactin inadmissible to New and Nonofficial Remedies (1) because there is no acceptable evidence for the use of the mixture, (2) because its name is not descriptive of the composition, and (3) because the circular accompanying the trade package is likely to lead to the ill-advised use of Optolactin by the public. (*Jour. A. M. A.*, January 13, 1923, p. 127.)

BACILLUS ACIDOPHILUS AND INTESTINAL PUTREFACTION.—While the administration of soured milk products is at times beneficial, the cause of this beneficial action is still undetermined. The belief that the Bulgarian bacillus can be permanently implanted in the intestinal tract and that this implantation is responsible for the effects is no longer tenable. Of late attention has been called to the effects of the administration of milk cultures of *Bacillus acidophilus* which is stated to be a normal inhabitant of the human intestinal tract.

It is reported that this bacillus may be successfully implanted in the intestinal tract provided a suitable pabulum is provided. It has been assumed that the acidity of putrefactive organisms would be almost entirely suppressed by a change of the flora produced by the administration of milk containing cultures of *Bacillus acidophilus* and that with such implantation, the somewhat hypothetical toxic products charged with harm to the body might also be expected to be suppressed. If indican excretion, however, may be taken as an index of intestinal putrefaction, it now appears that implantation of *Bacillus acidophilus* in the intestine does not lower the putrefactive process.

This suggests that favorable clinical effects pro-

duced by the administration of lactose cultures of *Bacillus acidophilus* are not primarily dependent on decreased production of the antecedents of indican. (*Jour. A. M. A.*, January 20, 1923, p. 186.)

Neisser-San-Kahn is claimed to be a new chemical compound. A preparation claimed to be zinc borosalicylate, however, was introduced about ten years ago (in Germany) as "Mucosan" with claims similar to those now made for Neisser-San-Kahn. The Council on Pharmacy and Chemistry declared Neisser-San-Kahn inadmissible to New and Nonofficial Remedies (1) because it is an unoriginal preparation under a proprietary non-descriptive name which the Council cannot recognize because the York Laboratories are not the discoverers of the product to which the name is applied, (2) the therapeutic claims are unwarranted, and (3) the available evidence fails to show that the preparation claimed to be zinc borosalicylate has any advantage over established zinc salts. (*Jour. A. M. A.*, January 20, 1923, p. 201.)

QUAYLE'S "BOB-WHITE HABIT SINKERS."—Charles H. Quayle, M. D., of Madison, Ohio, "Medical Director" of the "Dr. Quayle's Sanitarium, A Retreat for Drug Addicts, Alcoholics and Cigarette Invertisers" and "Specialist in Drug and Liquor Addiction," has been exploiting an alleged cure for chronic morphinism "and any other drug addiction." Formerly the treatment was "not for sale to any layman or person who wishes to treat himself" and physicians were importuned to use it. Today we find the Quayle's product advertised in the *Police Gazette* and similar literary productions. A "treatment" was purchased by a layman (for twenty-five dollars) and turned over to the A. M. A. Chemical Laboratory for analysis. The "treatment" consisted of four boxes of pills labeled as follows:

"No. 1—Eliminative" (contained 3 chocolate-coated pills and 1 capsule).

"No. 2—Antidote" (contained 323 yellow-coated tablets).

"No. 3—Nerve Tonic" (contained 37 red-coated pills).

"Special Eliminative Bowel Tablets" (contained 12 white-coated tablets).

The analysis demonstrated that the "treatment" is essentially (1) active elimination by cathartics, (2) the administration of atropin during the stage of morphin withdrawal, and (3) the use of strychnin at the close of the "treatment." It is evident that this is no more a cure than could be devised by any physician who is familiar with modern medical literature. No physician will believe that a patient suffering from chronic morphinism can cure himself by any such method as that exploited by Quayle. (*Jour. A. M. A.*, January 27, 1923, p. 270.)

THE "PROPAGANDA FOR REFORM" IN GERMANY.—An effort to establish a German Council on Pharmacy and Chemistry was made in Germany before the war. In spite of the demoralizing effects of the war, efforts are again being made in Germany toward the establishment of such a council. A commission of the Aerztevereinsbund, including such well-known men as Professor Heftter, Klemperer, Lenhoff and Schwalbe, has issued an appeal directed particularly against the misleading or fraudulent advertising still so common in many medical journals.

To acquaint the German medical profession with the method of the A. M. A. Council on Pharmacy and Chemistry and the changes that have been brought about in the United States, the *Deutsche medizinische Wochenschrift*, of which Dr. Schwalbe is editor, recently published a lengthy article that detailed the organization, aims and objects and accomplishments of the Council. (*Jour. A. M. A.*, Nov. 25, 1922, p. 1848.)

INSULIN.—An aqueous solution of an active principle from pancreas which effects sugar combustion. The strength of insulin is expressed in "units," one unit being one-third of the amount required to lower the blood sugar below 0.045 per cent. and cause convulsions in a rabbit weighing 2 kg. which has been previously starved for twenty-four hours. The administration of insulin to diabetic dogs and to man in severe cases of diabetes mellitus restores to the body the lost ability to oxidize carbohydrate, and glycogen is again stored in the liver. If insulin is administered at suitable intervals to a person suffering from diabetes mellitus, the blood sugar is maintained at a normal level and the urine remains free of sugar. Fat is also burned and, as a result, ketone bodies do not appear in the urine and diabetic acidosis and coma are prevented. The administration of insulin is indicated in cases of diabetes mellitus which cannot be controlled satisfactorily by dietetic treatment. Overdosage of insulin is followed by the development of serious symptoms which demand immediate treatment. Insulin is administered subcutaneously one, two or three times a day before meals. The dosage required to reduce the blood sugar to the normal level must be established for each patient by determination of the blood sugar before and after administration of insulin. In cases of coma or severe acidosis, an initial dose of 15 or 20 units of insulin may be given, followed at 3 to 4 hour intervals by smaller doses with simultaneous administration of glucose.

INSULIN-TORONTO.—A brand of insulin. It is marketed in 5 c.c. vials containing 10 units in each c.c., and in 5 c.c. vials containing 20 units in each c.c. Connaught Antitoxin Laboratories of the University of Toronto, Toronto, Ontario, Canada.

QUININE ETHYL CARBONATE.—The quinine ester of ethyl carbonic acid. Quinine ethyl carbonate was first introduced as equinidine. It is used in place of quinine sulphate and similar soluble quinine salts when a practically tasteless quinine compound is preferred.

QUININE ETHYL CARBONATE-M. C. W.—A brand of Quinine Ethyl Carbonate-N. N. R. Mallinckrodt Chemical Works, St. Louis, Mo. (*Jour. A. M. A.*, June 2, 1923, p. 1617).

ARSPHENAMINE-MALLINCKRODT.—A brand of arsphenamine-N. N. R. (See New and Nonofficial Remedies, 1923, p. 46). It is marketed in ampules containing, respectively, 0.1 gm., 0.2 gm., 0.3 gm., 0.4 gm., 0.5 gm., 0.6 gm. and 1.0 gm. Mallinckrodt Chemical Works, St. Louis, Mo.

BARBITAL-M. C. W.—A brand of barbital-N. N. R. (See New and Nonofficial Remedies, 1923, p. 62). Mallinckrodt Chemical Works, St. Louis, Mo.

CINCHOPHEN-M. C. W.—A brand of cinchophen-N. N. R. (See New and Nonofficial Remedies, 1923, p. 90). Mallinckrodt Chemical Works, St. Louis, Mo.

MERCURIC CYANIDE-M. C. W.—A brand of mercuric cyanide-N. N. R. (See New and Nonofficial Remedies, 1923, p. 194). Mallinckrodt Chemical Works, St. Louis, Mo. (*Jour. A. M. A.*, June 16, 1923, p. 1775).

ILETIN (INSULIN-LILLY).—A brand of insulin (See *Jour. A. M. A.*, June 2, 1923, p. 1617). It is marketed in 5 c.c. ampules containing 10 units in each c.c. and in 5 c.c. ampules containing 20 units in each c.c. Eli Lilly & Co., Indianapolis, Ind. (*Jour. A. M. A.*, June 23, 1923, p. 1851).

AMIDOPYRINE-ABBOTT.—A brand of amidopyrine-N. N. R. (See New and Nonofficial Remedies, 1923, p. 250). It is marketed in substance and in 5-grain tablets. Abbott Laboratories, Chicago, Ill.

EPINEPHRIN CHLORIDE SOLUTION-ABBOTT.—A solution containing epinephrine chloride, equivalent to 1 part of epinephrine in 1,000 parts of physiological solution of sodium chloride, preserved by the addition of benzoic acid and saturation with carbon dioxide. For a discussion of the actions, uses and dosage of epinephrine see New and Nonofficial Remedies, 1923, p. 112. Abbott Laboratories, Chicago, Ill. (*Jour. A. M. A.*, June 30, 1923, p. 1910).

PROPAGANDA FOR REFORM

CALCIUM THERAPY IN TUBERCULOSIS.—From a review of the literature, Maver and Wells concluded that there is no convincing clinical evidence of the value of calcium administration in tuberculosis. They believe that no deficiency in blood calcium exists in tuberculous patients. From carefully controlled animal experiments these investigators conclude that calcium administration does not affect the course of tuberculosis in animals. If the use of calcium compounds in the treatment of tuberculosis is to be continued, clinical experiments of a scientific character should be conducted. At the present time there appears to be no scientific basis for the use of calcium in tuberculosis (*Jour. A. M. A.*, June 2, 1923, p. 1619).

PROGRESS AND CONSERVATISM IN THERAPEUTICS.—The Committee on Therapeutics of the Council on Pharmacy and Chemistry has published a communication calling attention to two books which physicians should have—New and Nonofficial Remedies and Useful Drugs. It is explained by the Committee that for eighteen years the Council has done its utmost to bring before the medical profession the truth concerning the new proprietary medicinal preparations which are being offered to the profession. The work and functions of the Council are discussed, and, it is explained that while the Council was organized primarily to put a stop to the exploitation of proprietary medicines under false claims and the use of secret preparations, its activities have broadened until its work may now be characterized as a "propaganda for the rational use of drugs." The communication concludes: "New and Nonofficial Remedies" and "Useful Drugs" together furnish information concerning all drugs, old and new, which are at present essential to, or give promise of value in, the practice of medicine. They have been compiled with a special object in view, namely, to meet the needs of the student and practitioner of today. The report is signed by C. W. Edmunds, M.D., Professor of *Materia Medica* and *Therapeutics*, University of Michigan, Ann Arbor, Mich., John Howland, M.D., Professor of Pediatrics, Johns Hopkins University, Department of Medicine, Baltimore, Md., Ernest E. Irons, M.D., Ph.D., Associate Professor of Medicine, Rush Medical College, Chicago, Ill., W. T. Longcope, A.B., M.D., Professor of Medicine, Johns Hopkins University, Department of Medicine, Baltimore, Md., G. W. McCoy, M.D., Director Hygienic Laboratory, U. S. Public Health Service, Washington, D. C., W. W. Palmer, B.S., M.D., Bard Professor of Medicine, College of Physicians and Surgeons, Columbia University, New York City, Francis W. Peabody, M.D., Professor of Medicine, Medical School of Harvard University, Boston, Mass., L. G. Rowntree, M.D., Sc.D., Professor of Medicine, Mayo Foundation, Rochester, Minn. (*Jour. A. M. A.*, June 2, 1923, p. 1635)

THE JOURNAL

OF THE

Missouri State Medical Association

The Official Organ of the State Association and Affiliated County Societies
Issued Monthly under direction of the Publication Committee

Volume XX

ST. LOUIS, MO., SEPTEMBER, 1923.

NUMBER 9

E. J. GOODWIN, M. D., EDITOR
3529 Pine St., ST. LOUIS, Mo.

PUBLICATION COMMITTEE { W. H. BREUER, M. D., Chairman
S. P. CHILD, M. D.
M. A. BLISS, M. D.

ORIGINAL ARTICLES

INSULIN IN THE TREATMENT OF DIABETES MELLITUS

F. NEUHOFF, M.D.

ST. LOUIS

As the result of logical conclusions drawn from the convincing scientific work of Mehring and Minkowski, Opie and others, it has for some time been the prevailing opinion of the best minds of the medical profession, as reflected in the text books, that the Islands of Langerhans are the ductless gland portion of the pancreas which throw into the blood stream a hormone that presides over the sugar metabolism of the body, and that an absence or deficiency of this hormone in the blood will cause diabetes mellitus. It was reasonable to suppose, therefore, that an extract of the pancreas of lower animals, when administered to patients with diabetes, would supply the missing hormone and alleviate the symptoms of the disease. However, all pancreatic extracts produced prior to the year 1921 invariably turned out to be therapeutic failures as regards the treatment of diabetes.

It was in that year that F. G. Banting first became interested in the matter. Reviewing the whole subject, he concluded that the reason why pancreatic extracts as manufactured were inert was that besides the sought-for hormone of the Islands of Langerhans, they contained also powerful digestive ferments secreted by the acinous portion of the gland, the latter digesting and destroying the former. How to eliminate this undesirable by-product was the problem which Banting, with the aid of his colleagues at the Toronto University, undertook to solve.

After preliminary work extending over about ten months, they succeeded by the use of alcohol to extract from beef pancreas what appears to be a non-toxic hormone from the Islands. Injected hypodermically into animals with diabetes, it frees the urine from sugar and lowers the blood sugar level.

Since January, 1922, the new remedy has

been used in the treatment of human diabetics in the Toronto General Hospital. Since August of the same year, through the courtesy of the Toronto University it has been made available for use in several of the most important diabetic clinics in the United States. Some months later it was supplied to the medical profession at large. In a comparatively short time, a large amount of clinical experience with the new remedy has been accumulated in many different hospitals, particularly in the United States.

The new remedy is called insulin, derived from the Latin word for island. Lilly & Co. sell it under the trade name of Iletin. To be effective, it must be injected hypodermically or intravenously. The dose is gauged by units. One unit is one-third of the amount that will reduce the blood sugar of a kilogram rabbit to the convulsive level in 2 to 5 hours. Given in the proper dose to human diabetics, it relieves glycosuria and lowers the abnormally high blood sugar level. It raises the respiratory quotient, which proves that it promotes the burning of carbohydrates. As it relieves acidosis, it must facilitate the burning of fats. Furthermore, it favors the deposit of glycogen in the liver. It makes the patient gain weight and strength because it enables him to get his necessary heat and energy from the carbohydrates and fats of his food instead of by the consumption of his own body tissues.

Insulin is not a cure for diabetes in the strict sense of the word. It only supplies, for the time being, something to the blood in which it is defective. Its use probably must be continued indefinitely, although some patients after taking it for a time can get along with a smaller dose.

One unit will metabolize about 2 grams of glucose. If a patient fails to metabolize and loses by the urine 10 gm. of glucose, 5 units of insulin, more or less, depending on circumstances, will set matters right and free the urine from sugar. When the urine is sugar free, it usually takes a still larger dose to lower the blood sugar to normal.

The dose of insulin must be properly balanced with the amount of glucose yielded by

the patient's diet. The amounts of protein, carbohydrate, and fat, of the diet must be in a proportion that will avoid acidosis. If the dose of insulin is too large, the blood sugar will go too low, causing hypoglycaemia, or insulin shock. The symptoms of this condition usually appear several hours after the insulin injection. They are nervousness, tremors, diplopia, sweating followed in severe cases by convulsions, coma, death. At the first appearance of symptoms of hypoglycaemia we must

mobilizes the sugar from the liver, but should always be followed by the other measures previously advocated. A rectal drip or enema of 20 per cent. solution of glucose in saline has also been used. To safeguard our patients we must admonish them to be sure to eat all of the prescribed diet after insulin has been injected. It is well also for them, to have on hand some form of glucose or sugar to be taken at the first advent of symptoms of hypoglycaemia.

Form 1

ST. MARY'S INFIRMARY

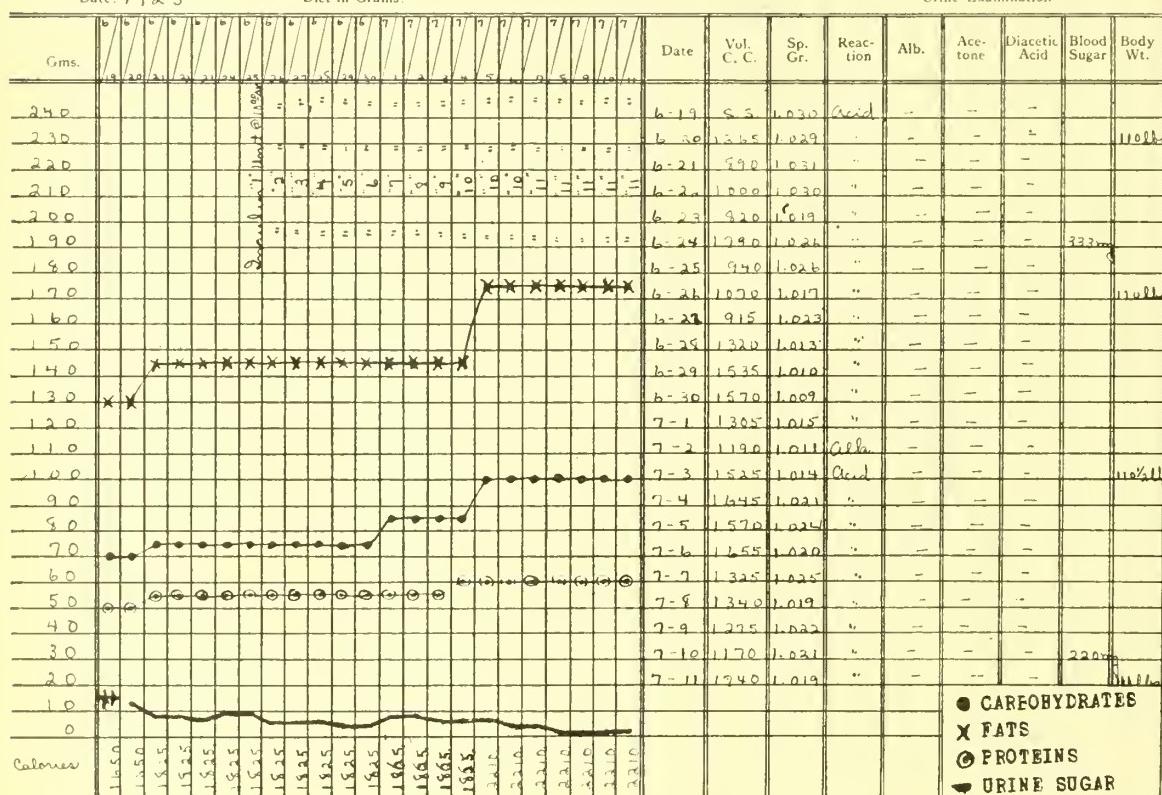
Name Mr. W. L.

Doctor's Name G. Neuhoff, M. D.

Date 1923

Diet in Grams.

Urine Examination



Diet Chart for Treatment of Diabetes at St. Mary's Infirmary.

at once administer some carbohydrate to counteract the too great insulin action. If the patient is able to swallow, we give the juice of an orange, some candy, or three teaspoons of glucose, Karo corn syrup, or cane syrup. If the patient is unable to swallow, or the above measures are not at once successful, we must inject 250 c.c. of a 10 per cent. sterile glucose solution into the vein. As a temporary expedient we may use 10 minims of 1 to 1,000 adrenaline solution hypodermically. This

HOW TO DETERMINE THE DOSE OF INSULIN

McPhedran and Banting¹ first put their patient for one week on his basal calorie requirement diet as figured from Du Bois' charts. Basal calorie requirement is the number of calories required by a person of a certain height, weight, age and sex, when perfectly quiet in bed, not eating anything. The blood sugar is then estimated. The urine is tested quantitatively for sugar and acetone. If the

patient becomes sugar free on this diet, the diet is gradually increased. If the urine remains sugar free when the diet reaches 500 calories above basal requirement, the case is not considered severe enough to demand insulin. If the patient secretes sugar before he reaches this amount of diet, they estimate his sugar tolerance, and increase his diet until his calorie requirement, as they judge it, is reached, always balancing the diet in excess of the patients' glucose tolerance with insulin. They figure that 1 unit of insulin can take care of 2.5 grams of glucose in a moderately severe diabetic.

Allen² employs undernutrition in beginning treatment, later building up diet and insulin dosage in parallel under laboratory guidance. He does not plan diets according to basal calorie requirement, but feeds patients what he finds in each case will maintain the proper level of body weight. The dose of insulin he also works out empirically.

Joslin³ at first uses his well-known low calorie diet until the urine is sugar free. Then he increases the diet and administers insulin in quantities sufficient to take care of glucose excess above the patient's tolerance. He achieves results with small doses of insulin. One of his cases whose weight had fallen from 157 to 72 lbs., gained 20 lbs. in weight and attained a normal blood sugar on 35 units a day, later holding his own on 10 units a day.

Woodvatt,⁴ likewise, starts treatment with small calorie diet, keeping the protein and particularly the carbohydrate very low. Then he raises the diet, until sugar appears in the urine and administers insulin enough to take care of it. The diet is finally raised to what the patient can subsist on comfortably.

At St. Mary's Infirmary we now use insulin after a plan which has been developed from reading the literature, and from deductions drawn from our own experience. Every new patient is examined, of course, in the usual way, and his history recorded. His blood sugar level is estimated. His urine is tested quantitatively for albumen, sugar, and acetone bodies. His basal calorie requirement is then figured by Du Bois tables.

I. If he is of good weight we put him at once on a diet which contains his basal calories plus 20 to 30 per cent. This we call his necessary 24-hour calories and designate it by the letter M. To avoid acidosis, we distribute these calories among the different food prin-

P
ciples according to the equation $F=2C+\frac{P}{2}$

the derivation of which we have discussed in a previous paper.⁵ P stands for the number of grams of protein, F for those of fat, and

C for those of carbohydrate in the patient's 24-hour diet. From the above equation translated into calories, and from another equation expressing the fact that M equals the sum of the calories of C, F and P, we get, after sim-

$$\text{plifying, } C = \frac{M - 8\frac{1}{2}P}{22}, \text{ and } F = \frac{M - 4C - 4P}{9}.$$

Now if we make P equal the number of kilos in the patient's weight, we can from the above formulae calculate a properly proportioned diet. After the patient has been on this diet for 5 days, we estimate his blood sugar and 24-hour excretion of sugar and acetone. If we find the urine sugar and acetone free, we consider the case not severe enough to require insulin, and treat it by dietary measures. If, on the other hand, we find the patient's blood sugar high and his urine containing sugar, we proceed to desugarize him, calculating that it will take about 2 units of insulin for each gram of urine sugar. For safety's sake we make the first dose of insulin only one-half of the calculated necessary amount. As the treatment progresses we adjust the diet and insulin from time to time as under the guidance of laboratory tests seems best. We aim to keep the urine about sugar free but disregard occasional glycosuria. We are satisfied to have the blood sugar reduced a reasonable amount, not aiming at normal figures.

Referring again to articles already quoted, we find that Banting tries by sufficient insulin to keep the urine free from sugar, and blood sugar normal. Woodyatt does the same except in very old cases, which he says have no sugar tolerance to lose. He thinks a normal blood sugar will conserve tolerance. Joslin seldom attains a normal blood sugar with insulin, though he keeps the urine sugar free, or nearly so.

II. If we receive a patient at St. Mary's who is weak and much underweight, we know he must put on flesh in order to do well. We put that patient at once on a diet containing 500 to 600 calories more than his basal calorie requirement. We let this equal M, and then use the same equations to compute the diet, and the same method to gauge the insulin dose that we described in treatment of good weight patients.

NUMBER OF DAILY DOSES OF INSULIN

Allen divides the 24-hour amount of insulin into two or three doses, given 20 to 30 minutes before meals. In very severe cases he gives a fourth dose at midnight, guarded if necessary by a small amount of food saved out of the daily rations.

Joslin uses one, two, or three daily doses of insulin.

Woodyatt uses a single morning dose.

At St. Mary's Infirmary, as a rule, we get along with one daily dose of insulin given one hour before the midday meal. Into this meal we crowd as much of the 24-hour food ration as will yield in the metabolism three-fourths of the total glucose allowance.

We have outlined the general plan of treatment, although, of course, the final diet and insulin dose will have to be adjusted to suit each particular case. Children will require smaller doses and are more liable to hypoglycaemia. Patients with inflammatory gangrene will require larger doses. We had one such case in which daily doses of 60 units of insulin had little effect on the amount of urine sugar. Our simple cases all did well, soon gaining weight and improving as to their general condition. One case gained 23 lbs. in four months. After having their diet and insulin dose fixed we let the patient go home. This is usually after four weeks. Before leaving the hospital the patients are taught to test their urine, compute their diet, and inject the insulin. They are told to report to us every week if possible. We append a bedside chart which portrays the progress of one of our average cases. This chart was devised by Sister Carola, in charge of St. Mary's diet kitchen.

COMA

Diabetic coma can usually be distinguished from other forms of coma by the acetone breath, hyperpnoea and the presence of sugar and acetone bodies in the urine. In the presence of these symptoms, treatment should be instituted at once without waiting for blood examinations. Barborka⁶ treats diabetic coma as follows: He applies external warmth, and forces the patient to take 1 liter of fluid every six hours. Besides, he injects hypodermically 30 units of insulin, buffered by 150 c.c. of orange juice by mouth. The orange juice is repeated in three hours. Insulin and orange juice in same doses as before are repeated every six hours until acidosis is under control. If patient cannot swallow, 15 gm. of dextrose is given every three hours by enema in 5 per cent. solution. In emergency, insulin and glucose by vein are resorted to. The effect of insulin must be controlled by repeated blood and urine tests. Barborka regards alkali as a valuable adjunct in the treatment of acidosis.

Allen,² in coma uses the usual auxiliary measures including sodium bicarbonate in 5-gram doses, up to 25 or 50 grams a day. Of insulin he gives 25 units intravenously, followed by 25 to 50 units subcutaneously. Further doses of 25 to 50 units are given several hours apart under guidance of laboratory and clinical indications. In the cases of patients able to swallow, he uses glucose or other sugars

by mouth. In patients unable to swallow, he uses 5 per cent. or stronger sterile glucose solution by vein.

Campbell⁷ uses very large doses of insulin in coma. He gives as much as 120 units for the first dose, followed by 40 units in one and one-half hours and again in two and three-fourths hours.

Before the introduction of insulin diabetic coma was considered an almost certainly fatal condition. Now many cases recover.

3206 Lafayette Ave.

REFERENCES

1. McPhedran and Banting: Insulin in the Treatment of Severe Diabetes. *International Clinics*, II, 33 Series, 1.
2. Allen and Sherrill: Use of Insulin in Diabetic Treatment. *The Journal of Metabolic Research*, II, Nos. 5-6, 803.
3. Joslin, Gray, and Root: Insulin in Hospital and Home. *The Journal of Metabolic Research*, II, Nos. 5-6, 651.
4. Woodyatt: Clinical Use of Insulin. *The Journal of Metabolic Research*, II, Nos. 5-6, 793.
5. Neuhoff: Recent Advances in the Dietetic Treatment of Diabetes Mellitus. *The Journal of the Mo. State Med. Association*, XX, 57.
6. Barborka: Use of Insulin in Treatment of Diabetes. *The Med. Clinics of North America*, VII, No. 1, 25.
7. Campbell: Ketosis, Acidosis, and Coma Treated by Insulin. *The Journal of Metabolic Research*, II, Nos. 5-6, 605.

THE RELATION OF KIDNEY FUNCTION TESTS TO THE PROGNOSIS AND TREATMENT OF HYPERTENSION *

DONALD R. BLACK, M.D.

KANSAS CITY, MO.

For reasons which will be brought out later, I have grouped the cases in this series under five headings:

1. Hypertension simple, 31 cases.
2. Hypertension with definite renal pathology, 9 cases.
3. Hypertension with glycosuria, 6 cases.
4. Infective and degenerative nephritis without hypertension, 5 cases.
5. Those showing clinical evidence of renal disease with no laboratory evidence, 3 cases.

This makes a total of 54 cases, 46 of which have high blood pressure. Of the six cases showing glycosuria in conjunction with hypertension we are able to establish definite renal pathology in one, thus placing five more cases in the first and one in the second class, making finally—

Hypertension simple, 36.

Hypertension with definite renal pathology, 10.

As we discuss our reasons for making the first and second classifications it will become evident that we have left ourselves considerable latitude, in that an exact border-line between the two classes certainly is not well defined. The tests which have been carried out in this series are:

1. Routine urinalysis.

* Read before the Jackson County Medical Society, Kansas City, Mo., November 26, 1921.

2. Mosenthal's two-hour test for fixation spg.
3. Sodium chloride concentration in the urine.
4. Urea concentration test.
5. Phenolsulphonephthalein test.
6. Blood urea nitrogen.
7. Blood creatinine.
8. Carbondioxide comb. power of the blood plasma.
9. Blood sugar.

The result of these various tests taken when we first saw the patients, and in some instances at subsequent times, together with clinical observations and history, furnish a working basis for this discussion.

Early in the series we did not make routine carbon dioxide comb. power of the blood plasma nor creatinine determinations, except in cases with evidence of nitrogen retention, that is, in those cases with high blood urea, nor did we make blood sugar determinations unless there was glycosuria or clinical evidence suggesting diabetes. An evidence of the seriousness of this failure on our part to make complete records, especially of blood sugar determinations, is the rather humiliating fact that four of our diabetic cases appear rather late in the series.

It might be well at this point to insert figures which we have considered normal for the various tests:

1. Mosenthal's two-hour test for fixation of spg.—the specific gravity must vary more than nine points during the two-hour tests. The night urine must not exceed 400 c.c.; the chloride content must be 0.5 per cent. calculated sodium chloride.

2. The urea concentration test—the concentration of urea in the urine must remain above 2 per cent. for two hours following a dose of 15 gm. of urea in 100 c.c. of water by mouth.

3. The phenolsulphonephthalein test must exceed 50 per cent. for two hours.

4. Blood urea nitrogen 10-15 mg. per 100 c.c.

5. Blood creatinine, 1-15 mg. per 100 c.c.

6. Blood sugar, 90-110 mg. per 100 c.c.

7. Carbon dioxide combining power of the blood plasma 50-75 per 100 c.c.

Let us tabulate the results of the various tests to the series:

SIMPLE HYPERTENSION, 31 CASES

- 3 have albumen in small amounts.
- 10 have few hyalin or granular casts.
- 3 have a definite low fixation of spg.
- 4 have a definite high fixation of spg.
- 6 pass more than 400 c.c. of urine at night.
- 3 have less than 0.5 sodium chloride.

- 10 have a urea concentration of less than 2 per cent.
- 10 excrete less than 50 per cent phenolsulphonephthalein.
- 6 have more than 15 mg. urea in 100 c.c. blood.
- 0 has more than 1.5 mg. creatinine in 100 c.c.
- 0 has more than 20 mg. urea in 100 c.c. blood.
- 3 have more than 110 mg. sugar in 100 c.c. blood.
- 0 has less than 50 per cent. Co-2 comb. power of the blood plasma.
- 29 have evident focal infection in teeth or tonsils.
- 22 are overweight.
- 28 are over 40 years of age.
- 14 have varying degrees of edema.

HYPERTENSION WITH DEFINITE RENAL PATHOLOGY

- 9 have albumen, hyalin and granular casts.
- 6 have definite low fixation of spg.
- 1 has definite high fixation of spg.
- 8 pass more than 400 c.c. night urine.
- 4 excrete less than 5 per cent. chlorides.
- 5 have urea concentration less than 2 per cent.
- 8 excrete less than 60 per cent. phthalein in two hours.
- 9 have 15 mg. of urea nitrogen per 100 c.c. blood.
- 7 have 20 mg. or more urea nitrogen per 100 c.c.
- 4 have 30 mg. or more urea nitrogen per 100 c.c.
- 2 have more than 1.5 mg. creatinine per 100 c.c.
- 2 have above 60 mg. urea per 100 c.c. of blood.
- 3 have more than 110 mg. blood sugar per 100 c.c.
- 4 have less than 50 c.c. Co-2 combining power.
- 9 have focal infection—9 pyorrhea and apical abscess, 5 infected tonsils.
- 6 are overweight.
- 7 are over 40 years of age.
- 6 have edema.

HYPERTENSION WITH GLYCOSURIA, 6 CASES

- 2 have albumen in small amounts.
- 2 have few hyalin and granular casts.
- 0 has low specific gravity.
- 4 have high fixation of specific gravity.
- 6 pass more than 400 c.c. night urine.
- 1 has less than 5 per cent. chlorides.
- 1 has a urea concentration less than 2 per cent.

- 2 excrete less than 50 per cent. phthalein in two hours.
- 5 have more than 15 mg. urea in 100 c.c. blood.
- 2 have more than 20 mg. urea in 100 c.c. blood.
- 1 has more than 1.5 mg. creatinine in 100 c.c.
- 6 have more than 110 mg. blood sugar. 160-140 mg.
- 1 has less than 50 c.c. Co-2 combining power.
- 6 have focal infection of teeth and tonsils.
- 3 have positive Wassermann tests.
- 3 are overweight.
- 6 are 40 years of age.
- 3 have edema.

INFECTIVE AND DEGENERATIVE NEPHRITIS WITHOUT HYPERTENSION, 5 CASES

- 5 have albumen in small amounts.
- 5 have few hyalin and granular casts.
- 2 have low fixation of spg.
- 0 has high fixation of spg.
- 3 pass more than 400 c.c. night urine.
- 3 pass less than 5 per cent. chlorides.
- 3 have urea concentration of less than 2 per cent.
- 3 excrete less than 50 per cent. phthalein in two hours.
- 3 have more than 15 mg. blood urea nitrogen.
- 0 has more than 20 mg. blood urea nitrogen.
- 1 has more than 1.5 mg. creatinine.
- 1 has more than 110 mg. blood sugar.
- 1 has less than 50 c.c. Co-2 comb. power.
- 0 has positive Wassermann test.
- 3 are overweight.
- 3 are over 40 years of age.
- 3 have edema.

Of the three remaining cases, two were arthritics, both overweight, with focal infection, but with normal urinary and blood findings. The other a case of marked Erythro Melalgia.

DISCUSSION

1. In so far as the etiology or the mechanism of hypertension is concerned, it makes little difference whether we explain hypertension on a basis of Cushney's "Modern Theory"; namely, that the kidney is a mechanical filter and that filtration occurs through the glomeruli, that is, Bowman's capsule, and reabsorption occurs through the tubules; and that hypertension occurs coincident with sufficient kidney destruction to render adequate filtration difficult.

2. Whether hypertension is occasioned as a result of arteriocapillary fibrosis in the glomeruli. (Sutton and Gull.)

3. Whether we follow the school which teaches primary hypertension with secondary kidney change, or vice versa.

- 4. Whether we refuse flat-footed to admit a renal origin for hypertension.

The fact still remains that the one fundamental principle which practically all investigators hold in common, is the idea that every case of hypertension is a potential nephritis. Therefore if, by careful laboratory analysis of our high-blood patients, we can separate those cases showing definite renal involvement from the ones in which no gross abnormalities are demonstrable, we are in a position to throw some light on two of the most important problems in modern medicine:

1. The first question the high-blood-pressure patient asks the doctor is, "Will I die soon, or will I be able to continue my business?"

2. That we can approach the problem of therapy in a more logical manner.

Let us first consider the 31 cases of simple hypertension. From a standpoint of metabolism, there are several outstanding features.

1. Only a small proportion have albumen and casts and these were not found at every examination. I think at present no one considers the mere presence of a slight amount of albumen and a few casts alone as absolute evidence of nephritis.

2. Only three have a definite low fixation of spg. and 6 a nocturnal polyuria. We realize that one of the first signs of kidney insufficiency is the inability to concentrate solids and that even early in interstitial nephritis, much more water is required to render waste metabolic products sufficiently dilute for filtration through the damaged kidney epithelium. The mechanism which controls these phenomena is apparently complicated and, if we follow Cushney, is a compensatory arrangement entirely. Thus filtration goes on normally when no kidney pathology exists and all waste products are carried off, but as fibrosis progresses, the density of the filter becomes greater and a proportional increase in pressure is required to render filtration complete. For this reason, presupposing a normal fluid intake, one readily understands why it is that a given patient with beginning kidney dysfunction is able to excrete a normal amount of urea and other metabolic products in 24 hours. Of course, this compensating ability has its limitations.

3. Nocturnal polyuria is another early manifestation of disabled kidney function and its explanation has much in common with that advanced to cover low spg. and increased amount of urine. However, some recent investigators regard nocturnal polyuria as an early evidence of edema and that the increased output of fluid at rest is merely a compensatory property developed by the organism for the disposition of retained water.

4. Only 3 are unable to excrete the normal

amount of sodium chloride. You are no doubt familiar with Schlayer's work on "The Relation of Edema to the Retention of Chlorides." I think that chloride retention is rather poor evidence of kidney involvement because sodium chloride output is influenced to a large degree by extra-renal influences. For example: the amount of salt imbibed and the amount of water brought to the kidneys for excretion.

5. Urea concentration test: McClean emphasized the fact that returned soldiers with kidney lesions failed to concentrate urea in amounts exceeding 2 per cent. after large doses of urea. Last year I attempted to show that one of the first signs of kidney deficiency with hypertension was the inability to concentrate urea. We have in this series 10 cases excreting less than 2 per cent. urea. These cases constitute a higher percentage showing abnormalities by this test than any other test used.

6. From a standpoint of blood chemistry only 6 cases are suggestive, in that they run a slight excess of blood urea nitrogen, none, however, exceeding 20 mg. per 100 c.c. For practical purposes, it may be stated that of the non-protein elements in the blood, uric acid is excreted with the most difficulty, urea next, and last creatinine. The urea estimations give us more valuable information for routine work than the others. Other conditions than nephritis may account for elevations in blood uric acid, therefore recognizing as we do that uric acid piles up in the blood in nephritis, other conditions must be ruled out before nephritis can be diagnosed, and one is often at a loss to explain slight elevations. On the other hand, urea has a more constant meaning and distinct elevations in blood urea almost always mean kidney involvement. It is rather interesting, in this connection, to note that urea values are rarely above normal in eclampsia, and often below normal during pregnancy. Creatinine, the last of the non-protein nitrogen elements to be retained, is important if high because with the ease of excretion the threshold is very stable and increases are always associated with grave prognoses. Urea being largely of exogenous origin is subject to much greater variation, especially under dietary influences, than creatinine which is of endogenous origin. Urea estimations therefore are of much less prognostic value in nephritis than creatinine, but furnish a much better guide to progress and efficiency of treatment.

7. Nearly all have evident focal infection and I have been very much interested in studying the effect of the eradication of foci of infection on the progress of these cases as evidenced by laboratory analysis. Especially have I been interested in the problem of dental

sepsis, because the age at which the majority of these patients have been seen is quite in keeping with the age in which one usually sees bad teeth. In a large majority of the cases, apical abscesses were demonstrated, and in all except two pyorrhea was present. Practically without fail smears from the pyorrhea pockets revealed the presence of numerous Vincent's spirillae and fusiform bacilli, while streptococci were grown in pure culture from many of the apical abscess sacs. The problem of Vincent's is interesting, not alone from a standpoint of the etiology of arteriocapillary fibrosis, but from a standpoint of therapy. Being anaerobic they respond well to oxidizing agents; that is, potassium permanganate hydrogen peroxide, potassium chlorate, methylene blue, salvarsan, and clean surgical procedure. Three of the patients who had had all their teeth extracted due to bad sinuses originating from old infected pockets. This fact might constitute an argument in favor of surgical removal of teeth rather than pulling them; stirring around the granuloma a bit with a curet and letting the patient go for better or for worse. In five of the cases, an appreciable drop in blood pressure was noted following the eradication of focal infection.

8. Obesity has long been considered a prominent factor in the etiology of hypertension and of our twenty-two patients who were overweight four, when placed on a low caloric diet, showed reductions in blood pressure almost proportional to the loss of weight.

9. I think the significance of the twenty-eight patients who were over 40 years of age is self-evident.

10. The question of edema is interesting from the fact that only three showed evidence of chloride retention. From a laboratory standpoint, I was unable to account for this edema, although all were overweight and had relatively large hearts, and therefore I assumed that it was likely due to beginning heart failure. This is quite in keeping with the now general idea that traces of albumen and a few hyaline casts may result from circulatory disturbances of the kidney due to early heart failure and may not in any way be indicative of nephritis. The significant fact brought to light by analysis of the series is, that all show one or more abnormality of kidney function, at least according to our interpretation of the tests, and careful scrutiny will supply the reason brought out earlier in the paper, "Why an absolute border-line cannot be drawn between essential hypertension and high blood pressure with nephritis." One would hardly be justified in placing patients in this series on a milk diet, telling them to quit active work, or even to advise than to greatly restrict their activities. On the other hand, we would ex-

plain to them as far as possible, the status of their case from a metabolic standpoint and advise them accordingly.

The next series, those presenting nephritis from both a laboratory and a clinical standpoint, carry a more serious prognosis and a fairly rational conception of therapy can be gathered from the state of metabolism.

The two cases showing high blood creatinine values and low CO₂ combining power of the blood plasma, were moribund and only palliative treatment was instituted. Those with edema showing inability to excrete salt were naturally placed on a salt free diet. Those showing definite elevation of blood urea were placed on low protein diets. The amount of fluids given depended on the ability of the kidney to concentrate solids, and those with high blood sugars were placed on low caloric diets.

The next group, hypertension with diabetes, is to me the most interesting of all. Most authors consider that the blood sugar of normal individuals varies between 90 and 110 mg. per 100 c.c. Meyers mentions the fact that the renal threshold for sugar is quite variable and that in younger individuals the above figures are correct, but with advancing age, and especially with the advent of signs of kidney impairment, the renal threshold is raised. There is evidence to suggest that this elevation of renal threshold for sugar is in almost direct proportion to the amount of kidney damage present. Barron has emphasized the fact that the sclerotic changes found in the islands of Langerhans, in these cases of elevated renal threshold, have much in common with the glomerulitis found in contracted kidneys. It strikes me, therefore, that blood sugar determinations might, in certain cases, serve as useful tests for kidney function. In this connection, I should like to emphasize case No. 23717:

Female, colored, age 67, admission diagnosis, hypertension with diabetes. She was well so far as she knew until two years ago when she had a paralytic stroke involving her speech and her right side. She recovered from this stroke in about a month's time, but since that time has complained of headache, dizziness, blurring of vision, and shortness of breath. Her blood pressure on admission was 200-114, her urine contained a strong reaction for albumen and 3.5 per cent. sugar with no casts.

Mosenthal:

7-15-21. Variation 1.027-1.048 B. S. 300 mg. per 100 c.c.
 8-8-21. Variation 1.008-1.018 B. S. 170 mg. per 100 c.c.
 9-2-21. Variation 1.012-1.018 B. S. 126 mg. per 100 c.c.
 11-1-21. Variation 1.008-1.016 B. S. 120 mg. per 100 c.c.
 Her phthalein output was in the neighborhood of 20 at each test and her blood urea never exceeded 15 mg. per 100 cc.

This case illustrates very nicely a high fixation of specific gravity with glycosuria and high blood sugar. When her blood sugar was

reduced to normal and her urine sugar free, we had a definitely fixed low specific gravity which as stated above is of considerable importance as a function test beginning kidney involvement in hypertension cases.

Three of the cases in this series had a definite diabetes and were treated accordingly. The other three were not considered as true diabetics but as elevated threshold cases due to kidney insufficiency. They were all obese and we placed them on a low caloric diet with some degree of improvement. It is interesting to note that the treatment of mild diabetes occurring in elderly individuals need not be unlike that instituted for simple hypertension.

The only point of particular interest in the next series, *infective and degenerative nephritis without hypertension*, is in connection with two cases of parenchymatous nephritis (if you will permit the term) who were quite edematous and passed large amounts of albumen and numerous granular casts.

As you probably know, Epstein in dealing with parenchymatous nephritis emphasizes the value of high protein diet. He suggests that the edema results from depletion of protein in the blood stream. In fact, he points out that as a result of the loss of a large amount of albumen through the urine, concentration of the protein in the blood falls far below that in the tissues, and following the principle of osmotic pressure, large amounts of water are drained from the blood stream to the tissues, hence the edema. He has used with success, high protein diets in these cases, with the idea that the equilibrium between blood and tissue protein may be corrected and in certain cases had resorted to blood transfusion. Similar treatment in our two cases has been disappointing. One of the patients died, the other is still living but from a metabolic and clinical standpoint her condition is much less favorable than when she first came under observation.

CONCLUSION

It is quite impossible to classify properly, cases of hypertension on a basis of clinical observation and urine examinations. I think that we will all agree that only vague bits of information in only small percentage of cases can be obtained from urinary examinations and therefore that we are not doing much to advance the present knowledge of hypertension and Bright's disease unless we exhaust every diagnostic measure at our disposal in the study of these cases. Therefore, I believe that only by making complete metabolic surveys of each and every high blood pressure case will we ever be able to make accurate prognoses in individual cases, or to arrive at efficient methods of treatment.

**THE DIAGNOSIS AND TREATMENT OF
EXOPHTHALMIC GOITER***

From the Department of Surgery, Washington University
School of Medicine.

EDWARD VERNON MASTIN, M.D.

ST. LOUIS

Exophthalmic goiter is a constitutional disease, apparently due to excessive and probably abnormal secretion of an enlarged thyroid gland, which shows on pathologic examination diffuse parenchymatous hypertrophy and hyperplasia. It is characterized by an increased basal metabolic rate, with the resulting secondary manifestations, by a peculiar nervous syndrome, by a tendency to gastro-intestinal crises of vomiting and diarrhea, and usually by exophthalmos. The condition may occur at any age, and is more common in women than in men in variously reported ratios of from 4.5 to 1, to 8 to 1. There are two types of exophthalmic goiter, the remittent and the chronic, the former being the more common. The remittent type is usually gradual in onset but may develop suddenly with a rapid increase in the severity of symptoms. This type is characterized by a series of remissions and exacerbations. The chronic form may begin as the remittent; it progresses slowly from a gradual onset and usually runs an even and mild course over a long period. During the course of the disease very marked damage occurs to the heart and other vital organs and if its progress is not checked those patients who escape death usually become chronic invalids. The so-called cardinal or characteristic symptoms of exophthalmic goiter may be enumerated as follows:

Tachycardia, loss of weight, often associated with a normal or ravenous appetite, weakness, enlargement of the thyroid gland, increased basal metabolism, a peculiar type of nervousness, tremor, usually bilateral exophthalmos, moist and warm skin, and a tendency to gastro-intestinal crises or nausea, vomiting and diarrhea. Most patients have an average pulse rate of 120 each minute and an increased pulse pressure; this in the absence of hypertension, almost always indicates increased circulation, which in turn signifies elevated basal metabolism. In the later stages of the disease the heart is enlarged as a result of the increased work required of it. Plummer emphasizes the common occurrence of a systolic murmur, with its greatest intensity over the pulmonic area. Auricular fibrillation is present, either chronically or intermittently, in approximately one-fifth of all such cases. There is a decided loss of weight, generally averaging twenty pounds. Patients may lose weight very rapidly in spite of a normal or even ravenous appetite. The

increased metabolism is maintained not only at the expense of the food intake but also to a large extent by the stored body pabulum. The loss of strength is usually one of the earliest symptoms and is first noticed by the patient in walking up stairs or in stepping on a chair.

A symmetrical, firm enlargement of the thyroid gland, with a granular feel, is typical of exophthalmic goiter. The enlargement varies considerably, from a gland that is barely palpable, to one that is enlarged four or five times normal size. An unsymmetrical enlargement is found in cases in which, by chance, adenoma is present before the onset of symptoms. The vascularity of the gland is definitely increased, and in over 70 per cent. of the cases bruits can be heard on auscultation. These bruits are generally localized over the main trunks of the thyroid arteries, especially the superior vessels, but at times are heard over the entire gland. A thrill is usually imparted to the examining fingers.

Boothby reports that in 2,569 cases of exophthalmic goiter 93 per cent. showed a basal metabolic rate of over + 20 per cent. The basal metabolic rate gives an accurate mathematical index of the degree of functional activity of the thyroid gland at the time it is taken; it is important in determining the intensity of hyperthyroidism, but it does not give an index of the toxicity of the condition, or the amount of damage that has taken place. Generally speaking, patients with metabolic rates above + 50 per cent. are considered poorer risks than those with rates below + 50 per cent.

The symptoms of nervousness are characteristic. Patients are anxious and stimulated, and feel over confident of their ability to work and to withstand all strains. They are continually on the move and are generally making a series of semipurposeful movements in rapid succession. A fine tremor of the hands, fingers, tongue and sometimes the lips, is commonly noticed.

Exophthalmos is not present in 20 to 40 per cent. of the patients at the time they seek treatment; however, if the disease has lasted for more than two years this symptom is present in over 90 per cent. There are three other eye signs that are only suggestive and of little real diagnostic significance, but should be mentioned. Von Graefe's sign is a failure of the upper lid to follow the eye ball in looking down; Stellwag's is a widening of the palpebral fissure with a resulting stary expression; Möbius' is a failure of convergence of the eyes.

The skin is moist and feels hot to the touch and the patients complain of an undue sense of warmth and excessive perspiration. The

*Read before the sixty-sixth annual meeting, Missouri State Medical Association, Joplin, May 8, 9, 10, 1923.

elbows and knees are often erythematous, due to restlessness and nutritional conditions. Chronic urticaria, if present, is annoying. The finger nails may become striated and flattened, with turned up ends, and the undercut is deep and irregular, making it very difficult and sometimes impossible to clean them. In cases of long standing the skin may show a distinct brownish pigmentation and slight jaundice. Vitiligo is occasionally seen.

Gastro-intestinal crises of nausea, vomiting and diarrhea may supervene; patients are able to retain very little nourishment and the body fluids are depleted. As no form of treatment has proved effective it is fortunate that these crises have a distinct tendency to be self limited. Often a dry, fissured tongue is seen preceding a gastro-intestinal upset and is always a serious symptom.

The complications usually seen in general surgery, infection, hemorrhage, and embolism, are not responsible for the high operative risk in exophthalmic goiter. Most of the fatalities are caused by the acute hyperthyroidism that is precipitated by operation, and to acute pulmonary infections; for on account of lowered resistance these patients are particularly prone to infections of the respiratory tract.

TREATMENT

No one type of treatment can be relied on to secure the highest percentage of cures in exophthalmic goiter; the choice would depend on the individual patient. Surgery undoubtedly offers the best possible chance for permanent cure, but only about 30 or 40 per cent. of the patients examined are in a condition to stand a primary thyroidectomy; therefore preliminary preparation is necessary in the majority of cases. In another 20 per cent. the wisdom of performing a thyroidectomy is doubtful, and a preliminary ligation is made as a test of the patient's condition. The patients that fall into the remaining group are definitely poor risks, and require prolonged periods of rest and other non-surgical procedures, as preparatory measures for ligations, and finally thyroidectomy. Before any surgical procedure is contemplated, it should be decided whether the patient has enough reserve strength to combat a severe crisis, in case operation precipitates one.

A primary thyroidectomy may safely be performed on patients with a mild or moderate degree of hyperthyroidism, provided they are capable of easily carrying the load of an increased metabolism, as evidenced by their ability to perform their ordinary daily duties. In such patients visceral degenerative changes have not occurred; they have lost very little weight and strength; and they do not have high metabolic rates. It is important to know that they have not passed through a recent

crisis, and that the severity of the disease is not increasing. In deciding on the operability of a given patient no one factor can be taken as a criterion, but all data must be correlated with reference to the individual.

There is another smaller group of cases in which the prudence of performing primary thyroidectomy is questionable, because of recent loss of weight and strength, to the presence of slight edema, or to undue apprehension. In these cases a preliminary ligation of one superior thyroid artery is performed simply as a test of the patient's tolerance, as the reaction following ligation is much less marked than that following thyroidectomy. If there is little or no reaction following this procedure, a thyroidectomy is considered relatively safe within the next ten to fourteen days; on the other hand, if there is a definite reaction further preparation is indicated.

About one-half of the patients presenting themselves for the treatment of exophthalmic goiter require carefully regulated medical treatment before any surgical intervention can be considered. Such patients present one or more of the following symptoms; recent or impending crisis; visceral degenerative changes, as evidenced by cardiac dilatation, edema of the extremities, or an enlarged liver; very high basal metabolic rates; dry and fissured tongue; undue apprehension and restlessness; and chronic infections. It is essential that these patients be at absolute rest under close observation, preferably in a hospital. Maintenance of the body fluids and cell nutrition is of prime importance. Any well adjusted diet that is pleasing to the patient and contains from 4,500 to 5,000 calories and about 4,000 c.c. of fluids will suffice. Fluids are given by mouth unless there is a gastro-intestinal crisis; then it is necessary to resort to proctoclysis, hypodermoclysis and occasionally intravenous administration. It is well to keep an ice bag over the precordium. In the case of a damaged myocardium and in auricular fibrillation, digitalis is indicated in doses of 2 c.c. three or four times a day, with care to avoid any accumulative effects. Patients showing extreme nervousness and irritability, as evidenced by reddened knees and elbows, due to thrashing about in bed, should receive morphin in doses sufficient to keep them quiet. Certain patients with exophthalmic goiter have an idiosyncrasy for morphin; however, the substitution of codein or an opium suppository is generally well tolerated. As a rule, bromids will control the milder types of nervousness.

After rest in bed for ten days a basal metabolic estimation is made, and on an average it will be found to have dropped ten points below the rate taken on entrance to the hospital.

The progress of the patient is checked with subsequent metabolic estimations.

Roentgen ray treatment is occasionally beneficial in a certain percentage of patients that have not improved sufficiently under prolonged medical regime for operation. The Roentgen ray treatment is instituted not with the idea of cure, but as a means of getting these obviously poor surgical risks into a better condition for operation, or as a palliative measure for inoperable cases. The foregoing treatment in many instances will satisfactorily prepare the patient for ligations and later for thyroidectomy. The fitness of the individual patient for operation is judged by a falling or stationary basal metabolic rate; a gain in weight and strength; decreased nervousness; satisfactory appetite; ability to rest without the aid of drugs, and an improved cardio-vascular system. It is always advisable to have these patients up and about for at least a week before the final decision is made.

In certain cases, the effect of a simple surgical procedure cannot be anticipated with any degree of accuracy; therefore it behooves the surgeon to proceed with extreme care. If the patient shows undue apprehension on going to the operating room he should be returned to his own room without delay. After a few days another attempt may be made, this time placing the patient on the operating table; if any untoward symptoms develop, no attempt should be made to ligate, but simply scratch the skin or inject a cubic centimeter of sodium chlorid solution under the skin. If no reaction follows, one superior thyroid artery can usually be ligated with safety in a few days. It is always desirable to ligate under local anesthesia (one-half of one per cent. procain without epinephrin), so that the condition of the patient can be watched more closely. If patients are extremely nervous but otherwise in good condition it is wise to use gas oxygen or ether combined with local anesthesia. If only a slight or moderate reaction occurs, it is safe to proceed with a ligation of the opposite superior thyroid artery in a week or ten days. However, if a marked reaction occurs, especially if it is accompanied by prostration and fever, the second ligation should be postponed for several weeks, or until the patient has regained his former strength.

Plummer has found that on an average the patient has received the maximal benefit from ligations after three months' rest. The improvement in these patients who return for thyroidectomy is often remarkable; they show an average gain of twenty pounds in weight; marked gain in strength; and a drop of fifteen to twenty points in the basal metabolic rate. A drop in the metabolic rate is also noted in patients who have passed through a recent

crisis, some intercurrent infection, such as tonsillitis, or anything that has caused a reaction. I have noticed that the patients who have the sharpest reactions after ligation often show the most improvement when they return for thyroidectomy. In some instances these patients appear cured and may have a normal basal metabolic rate; however, one should always advise thyroidectomy, for if it is not done a recurrence of symptoms will most likely follow.

It is not understood just why patients with exophthalmic goiter are benefited by ligation of the superior thyroid arteries. In view of the fact that there is an extremely rich anastomosis between the vessels of the same side and those of the opposite side, it would appear that some factor other than the blood supply must be responsible for the improvement following ligation. Cannon's work leads us to assume that the functional activity of the thyroid is controlled by sympathetic fibers. Ligation of the superior thyroid pole brings about an interruption of the impulses reaching the gland, since the sympathetic fibers reach the gland in company with the superior thyroid arteries. In order to get the maximal benefit from ligations, a polar ligation should be made besides dividing and ligating the superior thyroid artery as this would catch the veins, lymphatics and remaining nerve filaments.

Unfortunately there is a small group of patients who are not benefited sufficiently by ligation of the superior thyroid arteries to stand a thyroidectomy. This is probably due to insufficient rest; an intercurrent or focal infection; visceral degenerative changes; or to improper preliminary ligations. Such patients present a real surgical problem. Some are benefited by further rest, some by Roentgen ray treatments, and others by further ligation of the inferior thyroid arteries, or religation of the superior vessels. Many show irreparable visceral degenerative changes and are semi-invalids, and one hardly feels justified in assuming the risk of thyroidectomy when so little chance of cure can be promised, even though the patient withstands the operation. Occasionally thyroidectomy will check the progress of the degenerative changes, and the patient may live comfortably for years; therefore, in selected cases, we should assume this risk, even though it is quite high.

Resection of both lobes of the thyroid gland, and removal of the isthmus, preserving gland tissue on each side equivalent to about one-third of a normal lobe, undoubtedly offers the patient the best chance of cure. In no other operation is skill and technic so important, since hemorrhage, infection, or labored obstructive dyspnea incident to injury to the recurrent laryngeal nerve, may prove to be the deciding factor in the ultimate result. Local anesthesia,

or local combined with as little gas oxygen or ether as is possible to satisfy the individual patient, gives the best results; as a general anesthetic, at least temporarily, lowers the patient's resistance and throws an additional load on an already overburdened organism.

POSTOPERATIVE CARE

The postoperative management of patients with exophthalmic goiter is of the greatest importance. The early and forceful administration of fluids is often a life saving procedure. In doubtful or poor risks, when a crisis may be precipitated by operation, it is wise to give sodium chlorid solution subcutaneously as a precautionary measure against dehydration. Routinely, immediately on return from the operating room proctoclysis should be started, using tap water, sodium chlorid, or 5 per cent. glucose solution, as indicated. Every patient should be given water by mouth at the earliest possible moment; small frequent sips of cool water tend to make them much more comfortable. The amount is increased if well borne until the total fluid intake is about 3,000 c.c. An ice bag is placed over the precordium, small doses of morphin (gr. 1/6) are given only as needed for restlessness and pain; larger doses may cause nausea. The patients often have a collection of mucus in the throat and trachea which is extremely annoying. Small frequent doses of atropin (gr. 1/300) and steam inhalations of compound tincture of benzoin are generally beneficial. Digitalis is indicated in auricular fibrillation, and it is best to give 6 c.c. in 100 c.c. of sodium chlorid solution by rectum. After operation many of these patients show a decrease in the carbon dioxide combining power to a volume per cent. in the thirties, accompanied by the elimination of acetone and diacetic acid in the urine. Sandiford reports that no variation in the blood chemistry findings occur that could be considered of diagnostic or practical significance.

A few patients are thrown into a state of acute hyperthyroidism by operation. Such crises come on from twelve to thirty-six hours after operation; all degrees of severity are seen from a slight rise in pulse rate to delirium, coma and death. Nausea and vomiting may or may not occur. Varying degrees of temperature are seen, some reaching 106° F. The pulse rate is accelerated, may beat 200 each minute and often is associated with auricular fibrillation. Patients are apprehensive, become restless and thrash about in bed, finally becoming delirious or comatose. We are confronted with a serious problem, and many of the most severe reactions prove fatal. It is of paramount importance that the body does

not become dehydrated, therefore about 3,000 to 4,000 c.c. of fluid is given in twenty-four hours. As this level cannot be maintained by mouth a solution of sodium chlorid or 1 per cent. dextrose is given subcutaneously, and a solution of 5 per cent. glucose and 3 per cent. sodium bicarbonate is given as proctoclysis. In severe cases 250 c.c. of a 10 per cent. solution of glucose and 500 c.c. of sodium chlorid solution are given very slowly intravenously. When there is a rapid rise in the temperature, alcohol sponges, or numerous ice bags, or an ice pack is indicated. If there is any sign of chilling, blankets and hot water bottles must be quickly substituted. Morphin should always be given in doses sufficient to keep the patient quiet. Digitalis is used effectively in auricular fibrillation and myocardial degeneration.

Other postoperative complications are: anoxemia, respiratory infections, wound infection, hemorrhage, embolus, parathyroid tetany, and myxedema. The most serious of these is anoxemia and is due to one of several causes or to a combination of causes: (1) a collection of mucus in the trachea and bronchi; (2) a heavy dressing soaked with serum; (3) blood clot deep in the wound or under the flap; (4) edema of the larynx and vocal cords; and (5) injury to the recurrent laryngeal nerve or nerves. Injury to the recurrent nerve causing obstructive dyspnea is a most serious complication, and it may be necessary to perform a tracheotomy. To be of real value tracheotomy must be performed early, before the patient has become exhausted and has used up all reserve energy.

Wound infection, respiratory infections, and emboli need no especial mention.

Postoperative hemorrhage is no longer common. If it does occur it comes on in from a few hours to seventy-two hours after operation, and is generally from an inferior thyroid vein or branch of an inferior thyroid artery. Often a bleeding point is not seen. The wound should be opened, the clot removed, bleeding points ligated, and the wound packed with gauze. Hemorrhage after the third day is extremely rare and is always due to infection.

Parathyroid tetany is a rare complication and generally occurs about the third day; it is due to one of two causes—interference with the blood supply to the parathyroids and injury to the parathyroid glandules; it is rarely due to actual removal. The tetany can usually be controlled by the administration of calcium. Ordinarily 30 grains of calcium will control most cases after a few doses; but in severe cases 10 c.c. of a 5 per cent. solution of calcium chlorid, given intravenously, will prove more efficacious.

Myxedema following thyroidectomy for ex-

ophthalmic goiter is extremely rare. When it does occur it is almost invariably due to a severe infection developing in the wound and destroying the remaining thyroid tissue. This condition is effectively treated by properly regulated doses of thyroxin, or thyroid extract.

620 Wall Bldg.

BIBLIOGRAPHY

Boothby, W. M., and Sandiford, I.: Summary of the basal metabolism data on 8614 subjects with especial reference to the normal standards for the estimation of the basal metabolic rate. *Jour. Biol. Chem.*, 1922, LIV, 783-803.

Boothby, W. M.: Diagnosis and treatment of the diseases of the thyroid gland. The Oxford Medicine. Text Book. Oxford University Press, American Branch, New York, 1921, III, 883-957.

Mastin, E. V.: The blood supply of the thyroid gland and its surgical significance. *Surg., Gynec. and Obst.*, 1923, XXXVI, 69-74.

Plummer, H. S.: Functions of the normal and abnormal thyroid gland. The Oxford Medicine. Text book. Oxford University Press, American branch, New York, 1921, III, 839-873.

Sandiford, K.: Quoted by Boothby. The Oxford Medicine. Text book. Oxford University Press, American branch, New York, 1921, III, 927-928.

DISCUSSION.

DR. JOHN M. BELL, St. Joseph: I would like to raise a question regarding the diagnosis of hyperthyroidism. There is a question as to the necessity of any distinct or perceptible enlargement of the gland itself. There are those who hold, and it seems to me not definitely settled, that a continuously rapid heart, with tremor, weakness, and excessive perspiration on slight exertion are sufficient upon which to make a diagnosis of hyperthyroidism. The question is, might these be regarded as evidences of auto-intoxication of any other sort, or are we warranted in making a diagnosis upon these symptoms without any perceptible enlargement of the gland?

DR. DAVID S. DANN, Kansas City: I feel it is important at this time to emphasize a few things some of the other men have said with regard to diagnosis and X-ray therapy, particularly in the exophthalmic type of goiter. Before evaluating the results of X-ray therapy, or surgery, or any other type of treatment applied to exophthalmic goiter, we must be sure of the diagnosis. At present I feel, along with a great many others who have worked in this field, that the only true and valid test of the toxicity of the thyroid gland is the basal metabolic rate. The Mayos report that over 50 per cent. of all the cases referred as exophthalmic goiter had a normal basal metabolic rate. There is a certain group of cases having palpitation, loss of weight and a certain degree of exophthalmous, with absolutely normal basal metabolism. This group belongs to the sympathetic type. The cases are not to be classed in the group of exophthalmic goiter or treated as such.

A group of men from the Massachusetts General Hospital have reported about 60 per cent., which includes improvement and cure following radiation of the thyroid gland. I bring up this point at this time because recently considerable discussion has arisen whether the cure following radiation is coincident, or whether it is due to the natural remittent course of the disease. Several hold this latter viewpoint. Holmes reports certain types of cases in which fortunately they had control rest periods of the basal metabolic rate, which was carefully followed in these cases. It is important to emphasize the fact that these cases should be followed by means of the basal metabolic rate, the pulse, and the weight. Some of these cases had a basal metabolic rate of fifty, and following the institution of X-radiation the basal metabolic rate fell.

There is another group of cases in which the rate following radiation is followed by a rise of metabolism. X-radiation is instituted and the rate falls.

Every time a cure or relief is obtained from a therapeutic procedure the long arm of coincidence is called in to explain it. It seems futile to argue coincidence in all these types of cases.

DR. E. H. SKINNER, Kansas City: Inasmuch as X-ray apparatus is now so widely distributed over the country and there is much discussion of X-ray therapy of goiter which has been promoted by a very successful series of cases, by Dr. George W. Holmes of Boston, especially, it seems to me there should be a certain amount of warning or information regarding this method of treatment. It may not be amiss for that warning to come from one who has had an experience of years in X-ray, and has been treating goiters for a number of years.

To my mind the main thing in X-ray treatment of goiter is its value for a certain symptom, and that symptom is *toxicity*. It can be used to reduce the toxicity of the thyroid tissue. There is nothing specific about the treatment any more than surgery is specific. Surgery takes away the gland and the X-ray takes away the toxicity.

It is necessary to realize that the more severe your case and the greater the toxicity, the more infinitesimal should be your X-ray dosage. The bad case requires the least amount of X-ray, and the converse is sometimes equally true. In a case with a great deal of toxicity the patient is nervous. If his nervousness is increased by the X-ray apparatus in the office, it might be bettered by taking a portable apparatus to the bedside. If even this increases his nervousness, I think it is best to use radium.

In the cases I have treated the results are not obtained rapidly. In a report by Dr. Pemberton, upon an analysis of thousands of cases from the Mayo Clinic, their average results were obtained in 17.5 months. So that I feel where X-ray therapy is indicated, and you have been getting results at the end of six months, the record is quite good. You do not get results rapidly with surgery and you won't with X-ray; because as yet we have not found any specific for goiter as such. So the X-ray should be considered as a method of treatment, valuable for the symptom of toxicity.

DR. JACOB J. SINGER, St. Louis: I would like to make a few remarks on Dr. Mastin's paper, especially that part which refers to diagnosis. Anybody who has had any experience with tuberculosis in his attempt to make an early diagnosis of it is going to run up against the question of exophthalmic goiter. The symptoms of early tuberculosis are cough, loss of weight, fever, sweating, and fatigue; and the symptoms of early goiter are the same. How then are we going to differentiate them?

In the morning session, Dr. Snider showed some good slides of diagnostic X-rays of early tuberculosis. If it were known, a great many of these cases with this sort of picture also have thyroid exophthalmic goiter. The symptoms I believe are not sufficient to label the patient as suffering from tuberculosis. He may have goiter.

This question of metabolic rate is an important aid in differentiating the two. Patients who show both possibilities, if you put them to rest for any time, you will get systemic relief whether it is one or the other, and never be able to make the diagnosis.

In regard to the two treatments—surgery or X-ray—I would like to add the most important one that Dr. Mastin suggested, that we ought to establish more statistics about those cases which have nothing but rest. I am sure if the statistics were compiled with as great care, that a majority of patients will be improved under rest; and for those who do not get the benefit that rest should give you have the

X-ray and surgery. I think we are apt in the discussion of papers such as we have here to forget that by putting them to bed and giving rest we will get relief in a great many cases without anything else.

DR. KINARD, closing: In regard to Dr. Bell's question as to whether or not hyperthyroidism is a true toxemia, which is often caused by an auto-intoxication, we may say that, so far, that remains an unsettled question. If there is anything definite to so-called focal infection, so far as the thyroid is concerned, we must admit that a reaction is called for on the part of the thyroid to offset the poison generated by such a focal infection.

To meet such a requirement the thyroid may become hypertrophied and give off more normal colloid secretion. Or if this has continued for a definite length of time, a true hyperplasia may develop in the gland. A small gland may give very severe toxicity while a large gland may give no symptoms at all. The size of the gland per se has nothing to do with the severity of the symptoms manifest to the patient.

Dr. Skinner hit the nail on the head when he said the aim of the roentgenologists was to destroy toxicity by destroying the hyperplastic cells of the toxic goiter. X-ray treatment of toxic glands aims to destroy only the hyperplastic areas in a toxic goiter. Dr. Skinner believes that with certain irradiation to a normal gland no damage will be done; yet should any hyperplastic cells be present in such an otherwise normal gland, such hyperplasia will be destroyed. I have not had sufficient experience with X-ray work to know whether such a selective action can be obtained by raying a toxic gland. If that is true it should be a safe procedure.

Dr. McCandless has said some of his cases that were toxic have gained a lot of weight following the treatments by X-ray irradiation; and the explanation of this is a reversion in type of the goiter to subthyroidism from hyperthyroidism and probably to myxedema in the case that gained seventy pounds. If it could be proven that the X-ray will not destroy normal thyroid gland cells, and will destroy hyperplastic tissue in a thyroid gland, such things should not occur, unless there were no normal thyroid tissue in the gland when the treatments were started.

It is our experience that once the gland has become toxic, sooner or later, due to the progressiveness of the hyperplasia, surgery must be used. Surgery takes away the unsightly lobulated masses and at the same time it destroys toxicity.

It required many years to convince surgeons that the interval operation on a case of acute appendicitis was better than to wait for another attack. The mortality today from such an operation is practically nil. May we not advocate early operation for a toxic goiter before the entire gland has become too thoroughly invaded with hyperplasia, and before the resultant toxicity has permanently affected the other endocrine glands, as well as the heart and nervous system with the resultant toxemia.

REDUCED CARBOHYDRATE TOLERANCE: ITS POSSIBLE SIGNIFICANCE*

GEORGE HOWARD HOXIE, A.M., M.D., F.A.C.P.
KANSAS CITY, MO.

Whenever a new method of diagnosis is introduced great interest is attached to the findings by this method until the range of limitations of the method has been thoroughly estab-

lished. This could be easily illustrated by reference to the introduction of the chemical examination of the urine and more recently of the introduction of the blood pressure studies. As soon as the method has been established as to its possibilities and limitations and degree of accuracy it becomes one of the settled methods of procedure and to that extent loses its novelty.

So now in the introduction of the study of the blood sugar tolerance many questions have arisen and many unexpected results obtained which are not only of considerable interest but also of potential value.

A decade or so ago when the physiologists were studying blood sugar it was noted that in the study of blood sugar tolerance diabetics produced a curve in which the tendency was still upward and away from the horizontal line at the end even of three hours. Consequently, this curve was called the diabetic curve. Then it was noted that other patients than frank diabetics showed this same type of curve. Then the picture was complicated by the fact that many patients would show glycosuria without showing the diabetic curve.

At the beginning of the use of the clinical tests some authors were inclined to think that there was a parallelism between the function of the endocrine glands and the diabetic curve or at least the glycosuria. But the observations of those who have commanded considerable material have led us to believe that there is no such parallelism.

Henry John of the Cleveland Clinic has definitely postulated his opinion that the appearance of sugar in the urine under the conditions of the test means a damage to the pancreas and therefore a potential diabetes.

Ralph Pemberton was the first to point out that in rheumatism there was a lessened sugar tolerance. He found that some 25 per cent. of his patients improved as to their rheumatic condition if he did nothing more than remove the excess food values that they were ingesting. His later work has indicated that a lessened sugar tolerance is possibly a result of the rheumatic infection.

My interest was roused by these findings of Pemberton's; and when I studied the sugar tolerance of rheumatics, I began to find such unexpected results that I have continued the study in the hope that from the studies some conclusions would eventuate to shed light on the subject of allergy, focal infection, and glycosuria.

We have made 227 studies of which 116 were done with the usual macroscopic method and the DuBoscq colorimeter and 111 by the Einstein micro method. We used 1.75 grams of glucose per kilogram of body weight on the first 111 cases and are now using 1.5 grams

*Read before the American Therapeutic Society, San Francisco, June 21, 1923.

per kilogram of body weight. We did concomitantly the BMR in order to prove or disprove the parallelism between the thyroid function and that of the pancreas or the organs caring for sugar metabolism. We found the BMR normal in 133 cases, that is, between minus 10 per cent. and plus 10 per cent. We found the BMR above 10 per cent. in 57 cases. We found it below 10 per cent. in 34 cases.

In the group where the BMR was normal, we found glycosuria in 31 cases (or 23 per cent.); a glycosuria with a diabetic curve in 9 (or 6 per cent.); and a diabetic curve without glycosuria in 12 (or 9 per cent.).

Among the 57 cases in which the BMR was more than 10 per cent. above normal we found 19 cases with glycosuria (or 33 per cent.); only one case with glycosuria with diabetic curve; and 5 cases with diabetic curve without the glycosuria (or 8 per cent.). That is, in 56 per cent. of the cases of increased metabolism the sugar metabolism was normal.

In the 34 cases with the BMR more than 10 per cent. below normal, we found 4 cases of glycosuria (or 12 per cent.); 4 cases of glycosuria with diabetic curve (or 12 per cent.); and 8 cases of diabetic curve without glycosuria (or 23 per cent.). That is, out of 34 cases, 18 (or 53 per cent.) were normal with regard to carbohydrate metabolism.

To summarize again: Of the 133 cases with a normal BMR, the carbohydrate metabolism was normal in all but 52, that is, normal in 61 per cent. In the cases where the BMR was above 10 per cent., the normals were 56 per cent. (32 out of 57). And in the 34 cases more than 10 per cent. below normal BMR, the carbohydrate metabolism was normal in 18, that is 53 per cent.

A rough analysis of the cases showing a diabetic curve without glycosuria shows 6 cases due to focal infection, 8 due to endocrin disorder, 2 due to exhaustion, and 1 frank diabetes.

An analysis of the cases showing a diabetic curve with glycosuria shows 4 of focal infection, 11 of endocrin disorder, 9 of exhaustion, 2 of diabetes.

An analysis of the cases showing a glycosuria with a normal curve shows 14 of focal infection, 3 of endocrin disorder, and 9 of exhaustion.

The significance of these figures is not at once apparent. Of course, the factor of delayed absorption accounts in some cases for the type of curve. This occurs frequently enough to keep one on his guard against drawing far-reaching conclusions without a repetition of the test.

Then there is the high renal threshold that prevents the appearance of sugar in the urine at the usual glycemic level. While the normal

level for the spilling over is placed at about 16, yet the level is not yet fixed certainly enough to interpret our findings without some reservations. But again the rise in the threshold is usually interpreted as an unfavorable omen.

It therefore must be evident that the results of the blood sugar tolerance test are not to be read off in terms of diagnosis and treatment. Rather do they indicate the condition of the vital forces of the body as well as of such individual organs as pancreas and liver.

The important clinical questions regarding the test seem to be:

Are the results of the test individual and permanent?

We find that they are individual in that they remain consistent, but we do find that they change with the individual's condition. Thus far I have the impression that the type of curve is less apt to change under treatment than the glycosuria. Apparently the body responds to the spilling over of sugar into the urine by raising the threshold. But the internal mechanism for burning up and storing the sugars is not affected thereby, hence, the fallacy of judging the effect of treatment in diabetes by testing the urine alone. In other words, the raising of the threshold is a result not a cause and, like fever in infection, is a protective measure.

Does the glycosuria change with the patient's condition? As I have already indicated, it does. It lessens and disappears with improvement in the patient's general health and tone. How much effect the diet alone has I am not sure. I think that it has some effect. But I think that rest and the removal of focal infections has more.

Does the curve change with the improvement in the patient's general health?

The blood sugar level seems to change but the type of curve does not change. It would appear that when damage has been done to the organs concerned in carbohydrate metabolism, compensation may be obtained, but as in the case of a damaged heart, the effects persist, and there must be maintained this extra work on the part of other organs and a proper manner of life.

The test does give us a therapeutic clue in that we know that it is improper to force the feeding of patients showing carbohydrate intolerance.

I would like to call attention to one factor that is so often present in these cases of reduced carbohydrate tolerance and that is the factor of systemic exhaustion. This exhaustion may have resulted from sickness or from exertion or from one long continued monotonous activity. The results are the same—a lack of resilience in the bodily tissues. Such

a depression of vital forces will show itself in glycosuria with or without the diabetic curve. The curve, however, becomes more and more diabetic the longer the condition persists.

One finds such a condition of exhaustion in long drawn out cases of focal infection and then one is in doubt as to whether to speak of the condition as one of focal infection or of sensitization or of exhaustion. The three states are in many respects over-lapping. The effect on the carbohydrate tolerance is apparently the same.

1000 Rialto Bldg.

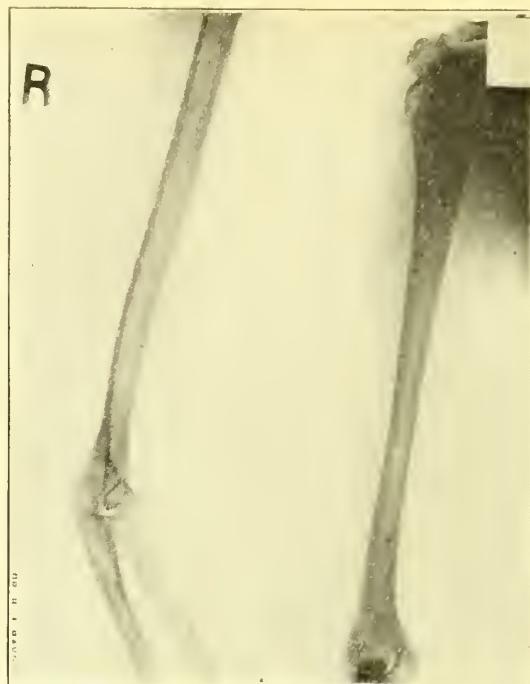
HEMANGIOMA, WITH CALCIFICATION, PRE-OPERATIVE AND POST-OPERATIVE X-RAY FINDINGS

H. J. RAVOLD, M. D.

ST. JOSEPH, MO.

Calcification of hemangioma is a rather rare phenomenon, or else it is rarely mentioned in medical literature in America. This is apparently true of Europe, also, for C. P. G. Wakely,¹ F. R. C. S. of Kings College Hospital, writing in 1921, states that he was able to find only one reference to this condition and that one was in American literature².

Hemangioma are composed of newly formed vessels,³ and are benign in character. The condition is usually congenital and may be situated near the skin, or in deep tissues. The cavernous type is progressive, and en-



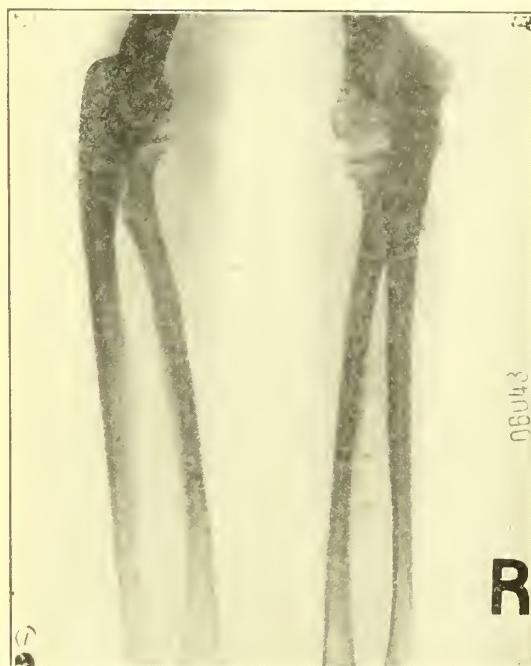
2. No calcified bodies above the elbow.

larges by distention of the original vessels, and by formation of new vessels.

The condition is not usually characterized by calcification. When this does occur the X-ray appearance is that of round or oblong bodies with concentric rings within them⁴. These calcifications are distributed irregularly, and occur usually in the extremities, most often in the forearm and hand.

The statement has been made that calcification occurs only in tissue that is dead or inert, and this seems to be borne out by a microscopical examination in one of Wakely's cases which indicated that the probable sequence of events was "thrombosis, fibrosis and then calcification"¹. My experience is limited to one case, a girl of 15 years. An interesting feature of the case is that no surface indications were apparent for a period of eight years. The pain in the forearm was first noticed when she was five years of age. This was quite severe and lasted two days. The next attack appeared in two months. After that, the intervals became shorter and the attacks more painful, lasting sometimes as long as a week.

About two years ago a swelling was noticed over the middle of the radius on both the dorsal and ventral surfaces of the forearm. The swelling disappeared under pressure, but there were no palpable nodules. There was no redness, nor other discoloration, but some pain on deep pressure. During the month preceding our examination the pain had been almost

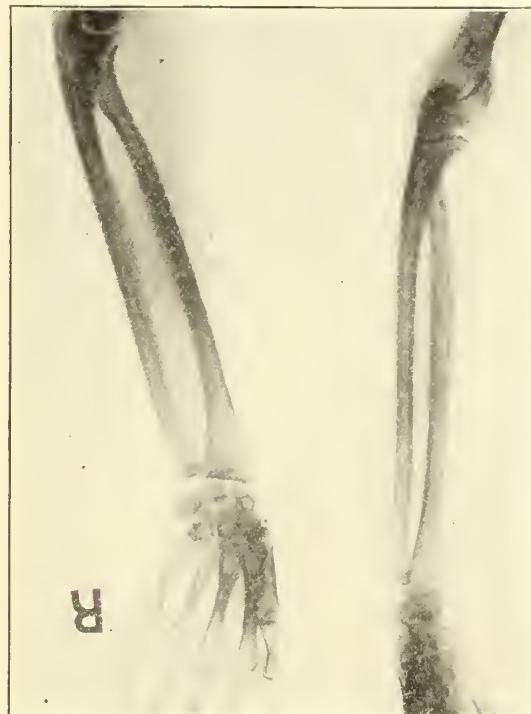


1. Pre-operative appearance of the forearm.

continuous. Our report designated the condition as probable hemangioma with calcified nodules.

The surgeon reported as follows:

"An incision was made on the radial border of the forearm. Exploration into deeper structures revealed a net-work of enlarged veins which were wrapped around the radius underneath the flexor and extensor tendons. Hard foreign bodies embedded in the veins were pushed against the bone by the tendons. These nodules were removed, the veins ligated and removed, and the wound closed without drainage.



3. Post-operative appearance of the forearm.

"The pain in this case was due to the foreign bodies being pressed against the bone and tendons. The hemangioma was between the deep median and radial veins.

"Several of these calcifications shown near the elbow were not molested because of the absence of symptoms."

Of the eleven calcified bodies removed, the largest measured about 0.6 cm. in diameter.

DISCUSSION

DR. PAUL FORGRAVE, St. Joseph: I have nothing to add to the history Dr. Ravold gave, but it happened to be my fortune to operate this case.

There is one interesting thing about these foreign bodies that Dr. Ravold did not mention, and that is the character of these calcifications. They were interesting from the viewpoint of formation. The slide shows one end calcified and one rather dark. These were embedded in the veins and it was notice-

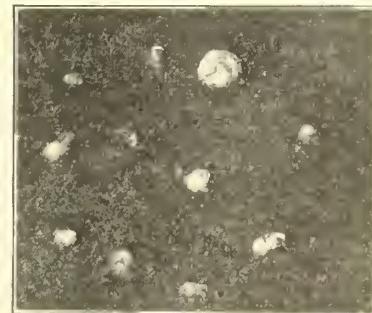
able that the calcified end was proximal to the dark end. There was evidently first, an occlusion of the vein by a clot, then calcification of this first clot and formation of more clot on the distal side of the calcification. The dark areas were very firm to the touch but not calcified.

Another interesting thing is that there were more bodies recovered than were found in the picture, showing that some of them did not have enough calcification to cast a shadow in the radiograph.

I might add that this patient was completely relieved of pain by the operation. The bodies near the elbow were not molested, as they were giving no symptoms.

E. H. SKINNER, Kansas City: I think we should congratulate Dr. Ravold on the presentation. This is a rare condition. I remember ten years ago a young radiologist of Los Angeles sent on a plate in which this condition was noticed. That case and one other of the same condition in the thigh are the only two I have seen. I have never listened to a report upon it which has been as carefully prepared as Dr. Ravold's.

One place we frequently come in contact with



4. Of the eleven calcified bodies removed, the largest measured .6 cm. in diameter.

phleboliths is in the pelvis, where they confuse us in interpretation of stone shadows in the bladder and lower ureteral areas. We try to insist upon determining whether the shadow has the characteristic of being perfectly round and along the brim of the pelvis. Very rarely in the shadows of the pelvis can we get the details as sharply as he has shown us upon the plates of the forearm.

DR. H. J. RAVOLD, St. Joseph: My only excuse for presenting such a small case as this is its apparent rarity. I think this has been confirmed by Dr. Skinner's past experience.

REFERENCES

1. Wakely, C. P. G. "Calcification in Angiomata," in the Archives of Radiology and Electrotherapy, May, 1921.
2. Ruggles, H. E. "Calcification in Angiomata," American Journal of Roentgenology, October 4, 1919.
3. Ewing, J. "Neoplastic Diseases."
4. Baetjer and Waters. "Injuries and Diseases of the Bones and Joints."

THE RECOGNITION AND TREATMENT OF POST-OPERATIVE COMPLICATIONS

F. W. BAILEY, M.D.

ST. LOUIS.

(Continued from August issue.)

NAUSEA AND VOMITING.

Most abdominal operations conducted under ether or chloroform anesthesia, and rarely gas

oxygen and local anesthesia, are followed by varying stages of nausea or vomiting.

During the first 24 to 36 hours a moderate amount will occasion no alarm and are natural after-effects of the anesthetic and operative trauma. The severity and persistence will be measured by the kind and amount of anesthetic employed and the degree of operative trauma, especially in gastro-intestinal invasion. Pre-operative dehydration, protracted starving, failure to secure intestinal elimination far enough ahead of the operative hour are apt to result in nausea and vomiting. The intestines should be gently at rest and not sensitive or hyperactive from too recent an irritation. Castor oil when purgation is desired, 36 to 48 hours before operation, followed by a bland paraffin oil and a preoperative enema, with strict regulation of diet that avoids all irritating and gas-forming foods in the interval, has given pleasing results.

An anesthetist who can obtain an even, steady unconsciousness without intervals of partial return, on a minimum amount of anesthetic, and who avoids unnecessary trauma to the respiratory tract, tongue, jaws, and pharynx, will greatly lessen postoperative difficulties. Nausea and vomiting are greatly encouraged by rough handling of the viscera, prolonged tension on the mesentery, and in stomach and gall tract manipulations. Vomiting that persists beyond a reasonable period, or that recurs after a period of quiet, may be due to sepsis, acidosis, acute dilatation of the stomach, renal complications, adynamic or mechanical obstruction, the pressure of improperly placed drains, dehydration or, as is too often the case, ill advised attempts to enforce premature resumption of stomach and intestinal function. Drugs by mouth are not well borne within the first 48 hours. Loss of fluids should be met first by generous intake before operation, up to within two hours, and by some satisfactory method of supply begun immediately following, such as proctoclysis of glucose 5 per cent. and soda bicarbonate 2 per cent. in water, continued every alternating two hours for the first twelve. Axillary seep and other forms of hypodermoclysis of pure distilled water, as suggested by Bartlett and McKittrick, are to be given, or the same fluid intravenously, if there be need for haste in the wake of severe loss during the operation. Under ordinary circumstances, it has been found satisfactory to withhold all water, or ice by mouth, as long as nausea is in evidence. Hot water is then begun in teaspoonful doses every few moments, gradually increased to a glassful, followed by cool water. If nausea returns, huge draughts of hot water, containing one drachm soda bicarbonate to the half pint are given and the stomach emptied. If vomiting still persists,

gastric lavage follows, repeated as indicated, and systematic search begun for remote causes. We have seldom been forced to resort to heroic measures, or to drugs, when the above plan has been carefully observed by nurse and intern.

HEMORRHAGE.

As a postoperative complication, hemorrhage rapidly menaces life and, quickly eclipsing the other sequelæ, becomes at once the paramount consideration. The term primary hemorrhage is meant to define that which occurs from (a) hemophilia, jaundice or kindred blood dyscrasias, (b) uncontrolled oozing or an unligated vessel that has escaped the eye of the operator, (c) displaced ligature or removal of clot and ligature during violent vomiting, etc. Secondary hemorrhage refers to that occurring two or more days following operation, and results usually from necrosis of ligature or vessel in the presence of infection.

Control of primary postoperative hemorrhage is to be based first upon observation of all preoperative precautions and when it does develop by early recognition and immediate action.

Leukemia, anemia, purpura, jaundice and hemophilia are easily detectable and those affected must be subjected to operation only when mandatory. In emergencies, when necessity demands interference as a life saving measure, local pressure, transfusion of human blood serum properly grouped, thromboplastin, hemoplasmin, calcium chloride and gelatin are of value. The defibrinated blood of a near relative has a most salutary effect.

One should carefully inspect the entire operative field after a period of relaxation, immediately preceding closure, and no bleeding point, however modest, should go unchallenged. Square knots, applied snugly, isolation and individual ligature of important vessels, and avoidance of mass ligation when intra-abdominal tension may disrupt, are important precautions.

Hematomas of mesentery, intestine, broad ligament, etc., must be incised, evacuated and the bleeding points arrested. One should never rely upon luck to control a hidden hemorrhage. The important part of a postoperative hemorrhage is to first recognize it and then lose no time in controlling it. Hemorrhage and shock are clinically so closely allied that they are often confused. Both can kill and, while clinically they may resemble each other, they do not respond to the same primary treatment and therein lies the value of early classification. A concealed hemorrhage may be recognized by:

1. Restlessness or alertness out of proportion;
2. Rapidly increasing pulse rate and decreasing blood pressure;

3. Mounting leucocyte count;
4. Insistent thirst and air hunger, merging rapidly into a state of deep shock.

Hemorrhage develops an acute anemia in proportion to the rapidity of the loss. Intense thirst and air hunger are late and not early symptoms and are grave indications. If mistaken for surgical shock and anti-shock measures applied, the hemorrhage will be increased. All blood-pressure raising treatment is directly antagonistic and will result fatally if persisted in. Morphin is the only drug indicated; head-low position to assure continued function of the medullary centers; and the quickest shock-free method of stopping the leak mechanically are to be applied without hesitancy. Then one can immediately institute anti-shock treatment, elevation of blood pressure, and replenishing the blood stream, with the welcome assurance that ground is being gained. There is no more severe tax upon the surgeon than when called upon to recognize and deal with a postoperative hemorrhage, complicated by severe shock, and no occurrence can so indelibly impress him with the inestimable value of attending to every preparatory and operative detail that will make postoperative hemorrhage unlikely. It is a well known fact that recovery may and often does follow a very severe spontaneous hemorrhage as in ruptured ectopic; lowered blood pressure and clotting time will usually check the flow, but postoperative hemorrhage, with the patient in a state of greatly lowered vitality and a large amount of residual blood in the abdominal veins, leaves a narrow safety margin ere the vital nerve centers become anemic and cease to functionate. Blood donors should be available in every severe case.

POSTOPERATIVE ACIDOSIS.

The factors which produce acid intoxication are not as yet clearly defined. Although recognized as an entity early in the history of general anesthesia, it was first believed to be "late chloroform poisoning." Peters in 1857 first detected acetone in a diabetic patient. For some time he and others considered it possible only in diabetes until Beck in 1894 conducted a series of pre- and postoperative examinations in 1500 non-diabetic patients and in over 60 per cent. found a pathological amount of acetone present. Numerous investigators by physiological chemistry and experimental surgery proved that it is a form of acid poisoning which frequently follows anesthesia, but incident to anesthesia only because of the fact that it promotes disarrangement of fat or carbohydrate metabolism. A mild degree of acetonuria may be found without clinical symptoms being present. Wilber and Marriott observed very severe attacks of acid intoxication with only a slight

degree of acetonuria present. Crile, after an exhaustive experimental and clinical study, is of the opinion that aside from general anesthesia and operation, acidosis may follow auto-intoxication, exertion, emotion, Graves disease, etc. He states that "the brain, adrenals, liver, thyroid and muscles together play important parts in energy transformation and that at least three of these organs, the brain, adrenals and liver, are especially concerned, also in the neutralization of the acids resulting from energy and transformation."

It is well known that all inhalation anesthetics increase the acidity of the blood. According to Gellhorn, acidosis appears in a high percentage of local and spinal anesthesias. It is present in diabetes and may be anticipated in malnutrition, starvation, especially as regards proteids and carbohydrates, in dehydration, and in the presence of all metabolic derangements.

J. A. Kelly, *Annals of Surgery*, February, 1905, reported 46 cases of acidosis with six deaths. The conditions for which these patients were admitted is of sufficient interest to repeat and proves the versatility of the disease. Contusions and fractures, 14 cases; appendicitis 11, severe lacerated wounds 3, cerebral concussion 2, localized septic processes 2, salpingitis, osteomyelitis, fecal fistula, epilepsy, alcoholism, burns, and typhoid, each one case; 17 developed without anesthesia having been administered. In the aged as well as the young acidosis may develop with startling rapidity and unless energetically treated pass quickly beyond our control. No other postoperative complication, excepting hemorrhage and shock, can so quickly sweep aside all barriers and progress to a fatal issue.

Symptoms usually appear from one to five days following operation or injury. The depth of the intoxication will determine the rapidity of its development. A mild sweetish breath may first attract attention. Patient may become apathetic, pulse and temperature may vary but little in the early stages. Later a sharp rise or sudden fall below normal with rapid pulse change will point to a profound toxemia.

Nausea and vomiting after the normal period has passed should warn. Air hunger, sighing respiration, periods of uneasiness or excitation followed by stupor, intense thirst, headache, and the presence of acetone and diacetic acid in the urine form a convincing group of symptoms, any one of which should stimulate the attendant to immediate investigation.

Treatment. This is the one really serious postoperative complication that can usually be prevented from developing. Knowledge of the causes which are known to be contributory make one more or less master of the situation. Prevent preoperative starvation and dehydra-

tion; efficient elimination without exhaustion; and examine carefully each highly acid urine for acetone bodies. Bicarbonate of soda and glucose solution are to be given freely for as many days before operation as condition will warrant; push alkaline fluids up to within two hours of operation. In suspicious cases select the type of anesthetic least prone to produce acidosis (gas oxygen and local), inflict the least possible operative trauma, and working with consistent rapidity avoid prolonged anesthesia.

If the case in hand is so urgent that the above precautions are impractical, intravenous glucose and sodium bicarbonate infusion immediately preceding ordinary anesthesia is advisable. Continue the preventive measures after operation. Intravenous 5 per cent. glucose and soda, or proctoclysis continued liberally for 24 to 36 hours will often rehabilitate an unstable metabolism. Thus will soon be replaced the lost body fluids. The period of postoperative starving may be safely shortened by replacing the proteids and carbohydrates as early as feasible. Ordinarily it is believed that protection is relatively assured by continuous proctoclysis of 2 per cent sodium bicarbonate and glucose solution in tap water reinforced by alkalinized fluid by mouth as early as accepted. Tap water in abundance is essential to promote elimination, the soda restores the alkaline balance and glycogen in the liver cells is replaced by the use of glucose.

When acid intoxication has really developed, the necessity for rapid replacement of body fluids, well alkalinized, is obvious, and the heroic measures mentioned above must be put into effect without delay. If diarrhea follows the excessive use of sodium bicarbonate, sodium citrate may be safely substituted and such stimulants as are indicated may be used to discourage dissolution until the metabolic balance is recovered. Acidosis is sometimes mistaken for shock. It may accompany shock. It is likely to develop after a severe hemorrhage and may be present to confuse the diagnosis in postoperative hemorrhage. It is evident that in the presence of active postoperative hemorrhage but little improvement in accompanying acidosis or shock may be hoped for until the hemorrhage is controlled. Acidosis is so respectfully feared by all surgeons that anti-acidosis routine in one's work should be favorably contemplated. Make its occurrence unlikely by preoperative preparation, selective anesthesia, rapid, finished and careful surgery, and in the early postoperative stage re-establish the body fluids and the depleted alkaline and carbohydrate elements in the blood and tissues.

SHOCK.

Shock was recognized nearly 400 years ago by William Clowes, but Little in 1795 first

applied it by name to the condition as we now recognize it. Galz, in 1870, by frequent experimentation, called attention to the vaso-motor changes which followed trauma and irritation. Nuzure (Ochsner, Vol. 1) defines shock as "a general bodily state following various surgical operations and wounds, characterized by a persistent low arterial blood-pressure, rapid, thready pulse, pallor, sweating and shallow rapid respiration." As in severe hemorrhage, there is insufficient circulation of blood and the resulting anemia is no doubt a factor in vital cell destruction which accompanies the severe long continued or fatal form. Most authorities now agree that the etiology may not be attributed to one single cause but to a variety of causes. During the recent war Porter ("Shock at the Front") called attention to lipemia as a persistent cause of shock in war wounds. The author has witnessed several fatal cases of death by fat embolism in which symptoms were in true alignment with intense shock, yet failing to respond to heroic treatment. Bissell (*S. G. and Obs.*, page 17, xxv) basing his opinion on animal experiments refuted the theory of fat embolism as a causative factor in shock. Numerous and variable theories as to the cause of shock have not been wanting. Psychic stimuli, prolonged or severe irritation of peripheral nerves, vaso-motor paralysis and exhaustion, carbon dioxide deficiency in the blood, and cardiac failure are only part of the past or present theories that mark persistent efforts to clarify this confusing affection. Crile, Seelig, Henderson, Lyon, Meltzer and many other earnest scientists deserve liberal credit for their exhaustive studies, but the efforts of none have been as yet rewarded with unqualified approval. Until the scientific atmosphere is clear and an unassailable theory of the causes and physiologic phenomena are proven we must be content with the practical knowledge we now possess. It cannot be denied that shock develops during and following operative manipulation and anesthesia; that loss of blood and extensive or long continued irritation of nerve trunks and severe traumas, such as crushing injuries, produce shock to a profound degree. We know that during the state of shock the heart and vaso-motor agencies are grossly disturbed; that organic functions are inhibited and psychic disturbances may be marked. Certain histologic changes in the central nerve cells occur in shock. Sajous describes the process as primarily a central disorder which results in vaso-motor incompetency and consequent reduction of blood pressure. The cerebral and peripheral vessels are depleted, the larger abdominal vessels engorged. By reduction of blood supply, the adrenals become inadequate and blood-pressure is further influenced. It is not the

function of this paper to determine whether any or all of these are related to cause or effect. Experience has taught us that certain conditions produce shock and that we may prevent its appearance or lessen its severity and danger by observing a certain degree of precaution in our surgical work.

SYMPTOMS.

Shock may vary in intensity, from a mild depression to a complete dissolution of the vital forces. In mild shock there is usually a moderate fall in blood pressure, mentality becomes dull and apathetic. General weakness is apparent, pupils dilate and react slowly to light. The skin becomes pale, cool and moist, pulse weak and rapid and diminished in volume. Thirst, due to free perspiration, is frequent. As shock increases, the temperature and blood pressure drop below normal, the facial expression listless, eyes staring and pupils greatly dilated, respiration shallow and difficult and often loss of consciousness; sphincters cease to functionate, hiccup and vomiting may occur. Syncope, heart failure and death may follow.

PREVENTIVE MEASURES.

Preoperative. Determine quality and quantity of kidney function, for kidney disease favors shock. Any deficiency in metabolism should be corrected; avoid excessive purging and dehydration. Determine by most careful history and physical examination the presence of any inherent weakness or pathology that may be of influence. Allay all fear, promote confidence and eliminate all environment that arouses antagonism in the patient. Mental relaxation, confidence in the surgeon, quiet in the operating room, a capable anesthetist and body warmth all contribute toward minimum shock. Preliminary hydration with soda and glucose has been emphasized elsewhere and will but be mentioned here.

Treatment (postoperative). The outstanding features of acute surgical shock are: (1) cerebral anemia; (2) vasomotor instability; (3) lowered blood-pressure.

Most of the clinical symptoms result from one or more of this triumvirate. The small volume of blood continued in circulation is unable to secure sufficient interchange of oxygen and carbon dioxide and hence the respiratory difficulties and acapnia.

Mental lethargy, heart failure and diminished function of all vital organs, are all enhanced hourly as cerebral anemia remains. The indications therefore in the treatment of shock are to re-establish the brain circulation by position and mechanical pressure exerted on the extremities and abdomen. At the same time, fluids by mouth, proctoclysis, hypodermoclysis,

axillary seep, transfusion, etc., and judicious application of external heat with effective morphinization furnish the basis of treatment. This differs from the treatment of shock following hemorrhage in that the bleeding must first be controlled. It must be remembered that in true shock not superinduced by severe hemorrhage, the normal volume of blood is still resident within the vessels and the danger of overloading a greatly handicapped heart with fluid, before elimination by skin and kidneys is again active and able to maintain the normal balance, may result in heart complications of serious magnitude. Distilled water, tap water, physiological saline, glucose solution and blood are all used to complete hydration. Infusion of gum acacia is mentioned only to be condemned as a routine. The most encouraging effects are witnessed when properly grouped blood by transfusion direct, by the aid of the Percy modification of the Kimpton tube, or by the citrate method, is given.

The body heat must be restored and the means at hand must provide the method. Hot bottles, blankets and hot air are efficacious. Hot water burns are as easily inflicted during deep shock as during anesthesia and must be guarded against. The electric shock bed in which the amount of heat supplied can be regulated is a genuine hospital necessity. Fortunately most cases of severe shock occur in hospitals. The great value of complete physiological rest and external heat in shock following severe war wounds was exemplified in the field hospitals. Many cases in which the wounded, as brought from the field stations, seemed almost lifeless, who could not have withstood even anoci-association exploration, were morphinized and placed in crude hot air shock beds and the reaction often witnessed was as startling as it was welcome.

Temporary stimulation by camphor in oil, strychnia, etc., are unworthy of great dependence and at times not devoid of harm. One may now and then observe, in the stress of excitement, the repeated injection of temporary stimulants into subcutaneous areas that are bathed in a halted lymph current with but little hope of entry into the blood-stream. Later on, when the circulation is re-established, the previously injected stimulants are swept into the current and a lagging heart may be whipped to a danger point, if not beyond it.

SHOCK SUMMARY.

The control of shock lies primarily in the observation of preventive measures. Haste in preparation which omits a single detail that may count for additional safety is to be deplored. Transfusion of blood not once but several times may be an essential postoperative

duty, especially if a wasting disease or a depleting hemorrhage has preceded it.

It is unwise to send a patient chilled with fright to a cold operating room and table, when hot blankets are easily obtainable.

One should carefully select anesthetist and anesthetic; all unnecessary surgical manipulations, especially rude handling of the splanchnic areas, rough traction or prolonged exposure of the viscera to a reduced temperature, are among avoidable errors that will surely promote shock.

Replenishing the body fluids and heat as soon after operation as consistent, and avoidance of spasmodic stimulants, careful nursing and rapid correction of the signs of impairment of the vasoconstrictor mechanism and its consequent drop in blood-pressure are worthy factors in the humane scheme of prevention. Lastly, morphine to block irritating stimuli to exhausted cerebral centers and to promote the recuperative power of rest completes a well tested routine in severe surgical shock.

THROMBOPHLEBITIS.

There are four factors, according to Frazier (Keens Surg., Vol. 1, 418) which play an important part in the formation of thrombi.

1. The presence of infective organisms.
2. Structural alterations of the intima.
3. Disturbances of the blood current.
4. Chemical changes in the blood.

The latter three are more or less contributory and are not as essential as infection in the pathogenesis. In surgery the process may begin as a phlebitis. Trauma, such as strong retraction, may produce roughening of the intima. Changes in the blood-current and pressure following operation slows the stream at that point and small thrombi may form. Many operations, especially for appendicitis, pelvic lesions and those involving the mesentery, are prone to result in thrombi and emboli. There is little doubt but that many postoperative cases often suffer numerous small emboli without being recognized as such.

It is also true that many so-called postoperative pneumonia cases are embolic in origin.

Clark furnishes convincing proof that infection is not a necessary factor. He believed the contused vessels, such as the deep epigastric, becomes the seat of a thrombus, which develops downward and in a limited number of cases enters the deep femoral and becomes lodged there. Left-sided involvement is most common, probably because of the circulatory arterial constriction, partly occluding the iliac veins and slowing the current. It is a brief and hasty step from this site to the right heart and no complication can strike quicker nor more fatally than can the detached embolus. Entering the postoperative phase, unwelcome and

without warning, it brings terror to surgeon and patient alike and both are helpless in the extreme. Small emboli from the origin of the appendix stump are frequent and no remedy for their cure is known to science. The only hope lies in observing all known principles of prevention, as early postoperative activity, correction of circulatory disturbances, and by assuring free drainage of all infective areas, watching carefully meanwhile for signs of phlebitis in any locality. The left femoral near the deep epigastric contributory is most often involved; at times the calf of the leg shows the first signs of venous obstruction. Careful attention early in the attack will now and then abort it. Elevation and heat to the diseased limb; no massage and complete bed rest are the chief factors in treatment of the femoral type of thrombophlebitis.

EMBOLISM.

Mesenteric and portal embolism are fraught with danger in the extreme. The symptoms naturally depend upon the size and location of the embolus. Interruption of the portal circulation is rapidly fatal.

Mesenteric embolism is ushered in by agonizing pain, symptoms of shock and hemorrhage, extremely rapid pulse, with subnormal temperature and prostration; the involved loop rapidly becomes gangrenous and unless death supervenes early, obstruction becomes complete and temperature rises as the peritoneum is invaded. After subsidence of the initial shock, exploration and temporary ileostomy under local anesthesia is advisable. Emboli which enter the right heart and subsequently the lung are proportionately frequent. Most postoperative pneumonias are probably due to minute emboli, and lung abscess and empyema are not uncommon sequelæ. When a giant thrombus plugs a large division of the pulmonary artery, death is instantaneous. There is no other post-operative complication that can shatter hopes and expectations so abruptly as fatal cerebral or pulmonary embolism. The sudden pallor and shriek of pain from a patient who is about to be discharged as cured, followed by a few moments of conscious agony, cyanosis, respiratory failure and death form a picture that is not easily erased from memory. It is incumbent upon us to keep in mind these dire possibilities in every operative case; not to the degree that it is depicted in our faces, but to the extent that most careful observation is accorded every trivial pain localization, every rise in temperature, every "sore" spot complained of by the patient; and to ignore it only when it has been eliminated as a possible menace. I am firmly of the opinion that many patients develop septic thrombi and are discharged from the hospital without it having

been recognized as such. Pain in the leg, during any stage of the postoperative period, should call for complete bed rest, elevation, warmth and watchful waiting. Fat embolism is not uncommon, and while seldom fatal is worthy of strict care in serious comminuted fractures and extensive injury or infection of the soft parts in regions where fat is predominant.

POSTOPERATIVE INFECTION.

There is but little excuse for a postoperative infection to remain long undiscovered or ignored. The blood picture and classical symptoms should prevent the delusion often indulged that our technique is infection proof. Pus under pressure in a newly made wound where lymph spaces are patent and an excellent culture medium available may rapidly change the picture of ideal convalescence to a nightmare. It is an error to silence with unfounded assurance and without investigation the complaint of pain and soreness. The skin and lips may appear normal with coaptation perfect and yet harbor a c.c. of infective fluid that can so easily retard a recovery. We should not expect the poorly circularized subcutaneous tissues to defend our negligence. A small sterile probe passed into the wound at the most sensitive point will open a tract that may re-establish the balance in favor of the normal tissue resistance, which, in a few hours, might have been seriously retarded. Deep seated infections due to imperfect drainage, and those transmitted by blood and lymph stream to the liver, pleura, lung, pancreas, etc., must be recognized early if serious danger is to be averted. The X-ray is of inestimable aid and remedial measures should not be delayed. The secondary infection is often a far more serious factor than the primary operation and delay in its recognition and attack will only enhance that danger and make more difficult our subsequent effort.

ACUTE DILATATION OF THE STOMACH.

Prolonged abdominal operations, especially involving the right upper quadrant, are not infrequently followed by acute dilatation of the stomach, a serious and often fatal menace. Albrecht attributed it to obstruction of the lower duodenum by the superior mesenteric vessel where it crosses the spinal column, a "gastro mesenteric ileus." Others hold that atony of the stomach, temporary paralysis of the gastric branch of the vagus, duodenal kink, or pyloric spasm with excessive secretion to be the cause.

Symptoms. It is often insidious at the onset. The usual postoperative vomiting continues as an overflow or regurgitation. Thirst is unquenchable, urinary output diminished, pulse

rapid and prostration out of proportion. The epigastrium may or may not be distended.

Treatment. Do not await visible epigastric distension. Persistent vomiting, an increase in pulse rate without corresponding temperature rise shortly after operation and excessive thirst mean either hemorrhage or acute dilatation of the stomach. The stomach tube cannot harm in hemorrhage when the stomach is not involved, and will usually clear up the diagnosis. Continuous lavage with hot water and the prone position are as a rule successful in relieving until the normal tonicity is restored. It is advisable to use the stomach tube freely preceding operations in the upper abdomen, where no contra-indication exists, and its postoperative value is immeasurable. Body fluids must be restored by proctoclysis or infusion. This will restore normal kidney function. When promptly met by this treatment, relief is usually obtained within 24 hours. Slow resumption of fluids and food by stomach is necessary. Drugs are without avail and may harm.

INTESTINAL OBSTRUCTION.

It would be unwise to enter the usual prolonged discussion of this most serious postoperative complication. Only brief reference will be made to the essential phenomena by which it is recognized. Whether the ileus is dynamic or adynamic must be determined before treatment is effected, lest the chance of recovery be lessened.

Symptoms: Pain may or may not be present. Abdominal distension with persistent vomiting, becoming fecal in type as reverse peristalsis becomes active, rapid dehydration, exhaustion, pinched facies and deficient urine output mark the progress of unrelieved obstruction. Visible peristalsis is a prominent local feature and the site of the obstruction can at times be palpated.

Pseudo or adynamic ileus, a temporary paralysis of sections of intestine, is present to some degree in most severe laparotomies. It is usually transient and frightens more than it harms. In abdominal operations wherein much handling of the intestine and mesentery, and prolonged exposure have been necessary, the readjustment may be somewhat retarded. The condition disappears ordinarily during the few days of intestinal quiet. When it persists and one or more sections fail to respond to the sympathetics, all the symptoms of true mechanical obstruction develop. A knowledge of the status within the abdomen may be necessary and pituitrin may be given with good effect. If true obstruction is ruled out enemata may also bring relief, and in combination with lavage for vomiting and proctoclysis, with no fluids per ora, normal peristalsis is restored.

Operation is contra-indicated, but explora-

tion under local anesthetic should be the rule if differentiation between the two types is so difficult that serious delay is caused.

True postoperative intestinal obstruction presents a kaleidescopic picture in that the etiology is so variable. Bartlett gives a classification which is simple and comprehensive:

1. Dynamic (functional) ileus—
 - (a) Paralytic;
 - (b) Spastic;
 - (c) Hirschsprung's disease;
 - (d) Thrombosis and embolism of mesenteric vessels.
2. Mechanical ileus—
 - (a) Strangulation;
 - (b) Obstruction;
 - (c) Volvulus, knots;
 - (d) Caused by Meckel's diverticulum;
 - (e) Kinking;
 - (f) Strictures.

The paralytic form commonly develops in the presence of infection or peritonitis. The spastic in those suffering from disorder of the nerve supply, toxic irritation and intestinal parasites.

Thrombosis and embolism of mesenteric vessels are rare, but dangerous indeed when they occur. In the mechanical form, direct pressure, twists, intussusception and kinking, promoted by adhesions, are most numerous and fraught with real danger. We are inclined to hesitate too long in our diagnosis in the mechanical form of obstruction.

Treatment. Several abdomens had better be explored and a few errors made than to participate in one death that might have been averted. True ileus with complete obstruction, not due to spasticity or infection, should be subjected to early operation, with the aid of local or gas oxygen anesthesia. It is a grievous error to permit dehydration from persistent vomiting. It is not so important to the patient that we determine whether toxic absorption from the proximal bowels, or dehydration and acidosis is the cause of the symptom complex, as it is that the constriction be relieved by the most rapid means and with the least additional shock to an already overtaxed system. Abdominal pain, hyperactive peristalsis, distension and vomiting not relieved by repeated lavage and enemata recommend action before feculent vomiting and shock have arrived. Dehydration must be combated by saline or glucose infusions, freely and frequently. All medication is forbidden and morphin particularly contraindicated. Just as soon as mechanical obstruction is fairly assured, replenishing the alkalinity and body fluids and relief of the obstruction is imperative. Irresolution in the face of such definite indications bespeaks a timidity that ill becomes a surgeon.

It must be mentioned again in passing that thoughtful preparation of the patient for operation, careful observation of the intra-abdominal pathology, readjustment of the viscera in closing, and rigid postoperative supervision will make more difficult the development of serious forms of postoperative ileus.

CONCLUSIONS.

1. Many postoperative complications may be traced to some preparatory, operative or post-operative neglect.

2. No major operation is so simple or safe that a careful history, physical and laboratory examination is not essential.

3. Routine methods of preparation may lead to serious consequences. Each patient is entitled to a careful inquiry into his individual characteristics.

4. First determine the necessity of operation, next the fitness of the patient to withstand it. One will then avoid surgical overindulgence and save oneself many regrets.

5. (a) Acidosis, (b) shock and collapse, (c) hemorrhage, (d) acute dilatation of stomach and (e) embolism, are the group about which postoperative worries center. It would be well for us to know just how much of the blame for their development may be justly attributed to our own neglect. The most salutary picture of any operation is a satisfying end result. Unselfish attention to the minor details of diagnosis, operation and postoperative care will conserve life.

611 Metropolitan Bldg.

TREATMENT OF NONUNION OF FRACTURES OF MANDIBLE BY FREE AUTOGENOUS BONE-GRAFTS.—The indications for bone-grafting of the mandible given by Fulton Risdon, Toronto (*Journal A. M. A.*, July 22, 1922), are: nonunion of fragments of long standing; loss of bone due to gunshot wounds; carcinoma; infection, cysts, etc., provided enough of the ascending ramus is *in situ*. The bone selected for transplanting is always taken from the crest of the ilium. Intratracheal anesthesia is preferred. Of seventy operations, sixty-six, or 90 per cent., were successful, four were failures and there were no deaths.

POLITICS AND THE HEALTH OFFICER.—Matthias Nicoll, Jr., New York (*Journal A. M. A.*, July 22, 1922), states that the reasons for the unpopularity of public health service are: (1) lack of knowledge on the part of many graduates of the professional schools as to the character of the work, the opportunities afforded for developing it and the qualifications, technical and personal, which are essential to success; (2) inadequacy of compensation, and (3) uncertainty as to tenure of office. To obtain adequately paid, well qualified, whole-time health officers, with a secure tenure of office, the author suggests that general education of the public regarding the meaning and importance of efficient health administration is needed.

**THE JOURNAL
OF THE
Missouri State Medical Association**

SEPTEMBER, 1923.

EDITORIALS

INSULIN

The subject of insulin, at the present time, is attracting a great deal of attention in both the medical and the lay press. The discovery of this new remedy for diabetes by Dr. F. C. Banting, has been called the most important medical achievement of the decade. Prior to the use of insulin, sufferers from severe forms of diabetes, in order to be sugar free, and in that way protected against the terrible complications of the disease, acidosis and gangrene, were generally condemned to a life of hunger, emaciation, and weakness. For that is what the dietetic treatment of severe diabetes, no matter how skillfully managed, usually entailed. By the aid of insulin, on the other hand, the diabetic is enabled to eat sufficient food to satisfy his as a rule distressingly good appetite and in a measure regain his normal weight and strength.

Formerly the diet of a diabetic had to be cut down to his glucose tolerance. Now, thanks to insulin, the patient's glucose tolerance is built up to his desired diet. However, to give insulin when not absolutely needed, or in amounts larger than necessary merely in order that the patient may indulge his appetite, would be an abuse sure to lead to disaster.

The fact that insulin treatment has to be continued indefinitely makes the cost an important item. The present retail price at five cents a unit makes the usually required daily dose of from 10 to 30 units cost from fifty cents to one dollar and a half. No doubt, the development of sources of supply other than the beef pancreas will tend to lower the cost of production.

In connection, we may mention the fact that the pancreas of certain fish is known to contain insulin in large quantities and that Dr. Callif, as stated in an editorial of the *Journal American Medical Association*, has succeeded in isolating from vegetable sources a substance called glycokinin, which has properties similar to those of insulin.

Possibly the city or the state may be prevailed upon to furnish insulin free to poor diabetics, as they now furnish diphtheria anti-toxin and salvarsan to poor patients in need of those remedies.

INSTRUCTION IN USE OF INSULIN

Courses of instruction in the dietetic and insulin treatment of diabetes will be offered to a limited number of physicians at the Barnes and St. Louis Children's Hospital, St. Louis, September 10-12, October 1-3, October 15-17, and October 29-November 1, inclusive. These courses are made possible by a grant from Mr. John D. Rockefeller, Jr. No fee will be charged.

The courses will consist of (1) lectures; (2) ward rounds; (3) practical dietetic demonstrations in the kitchen; (4) laboratory demonstration in necessary laboratory methods for careful treatment.

Physicians desiring to take these courses should write to the Superintendent of Barnes Hospital, 600 S. Kingshighway, St. Louis.

HOW TO ENTER THE MISSOURI STATE SANATORIUM FOR TREATMENT OF INCIPIENT PULMONARY TUBERCULOSIS

The Missouri State Sanatorium, for the treatment of incipient pulmonary tuberculosis, is located in the Ozark Mountains, at Mount Vernon, Lawrence County, Missouri. It is 1,285 feet above sea level.

The law provides for two classes of patients, namely: free or county patients, and private patients. They receive exactly the same treatment and attention. All must have been residents of Missouri for at least one year prior to their admission.

HOW TO GAIN ADMISSION AS A FREE PATIENT

Free patients make application direct to the county clerk of the county in which they reside. The family physician may go with them if it is possible for him to do so; otherwise, he may make the following statement:

"To the Honorable Court of County:

This is to certify that I have examined and find that he (or she) is suffering with pulmonary tuberculosis, and is a suitable case for admission to the Missouri State Sanatorium at Mt. Vernon, Mo.

(Signed), M.D.

Applicant must also take two citizens along by whom they can prove that they are not financially able to pay for the treatment at the State Sanatorium and make the following application:

"To the Honorable County Court of County:

I hereby make application for treatment at the Missouri State Sanatorium at Mt. Vernon, Mo., for pulmonary tuberculosis

and declare that I have no means with which to pay for said treatment.

(Signed)

In case applicant is a minor, the parents may make a similar application for them.

When Court order is issued and mailed to the Superintendent of the State Sanatorium, Dr. J. W. Bruton, he immediately sends necessary blanks with full instructions about their use. These blanks are not to be sent out until after Court order is received by the Sanatorium for free patients.

HOW TO GAIN ADMISSION AS A PAY PATIENT

A letter direct to the Superintendent, stating that applicant desires to enter as a pay patient will suffice as an application. Then the necessary blanks with full instructions will be sent direct to the applicant. Pay patients are charged \$50 per month, in advance, and pay their own examination fee.

VERY IMPORTANT

Please do not, under any circumstances, advise or encourage applicants to come to the sanatorium until after they have been notified to do so by the superintendent.

As soon as the blanks are returned to the Sanatorium, properly filled out, they are passed on and the applicant is notified whether or not he is acceptable. In case there is no vacancy the applicant's name is placed on the waiting list and he is notified as soon as there is a vacancy. For additional information, write Dr. J. W. Bruton, Superintendent Missouri State Sanatorium, Mount Vernon, Missouri.

THE MEDICAL SOCIETY AND THE RIGHTS OF THE COMMUNITY

In a certain county medical society, whose meetings are held weekly in a city of 70,000, a member was brought before the board of censors to answer very serious charges preferred against him. The censors, after investigation, reported their findings to the society and recommended that the accused member be expelled. A two-thirds vote was required for expulsion, but was not secured. Slightly more than one-third of the members present at the meeting at which the vote was taken voted against expulsion. So the society found itself in the position of having a member who had been found guilty of a serious offense by its board of censors, and whose expulsion was favored by almost two-thirds of its members. The matter was carried to the council of the state association, who instructed the county medical society to expel the member found

guilty by its board of censors, or to suffer loss of its charter.

There has been considerable publicity concerning the situation, newspapers having carried statements from both sides. Finally, the editorial reproduced below appeared in a local newspaper. It is interesting in more ways than one, but especially because of the point made that the public has certain rights which should be considered by a medical society, even in its own government.

The public has a right to protest against the division that is about to disrupt the county medical society. No other profession occupies the close, intimate and vital relationship to a community that members of its medical faculty occupy, and the community has a right to expect that the responsible members of that profession shall keep it clean of pretenders, incompetents and quacks. Realizing that right in the public, physicians have universally organized themselves into associations under a fixed code of rules and regulations for the control of practice and the protection of each other as well as of their patrons. There are many of the so-called ethical rules set up by the profession that do not appeal to the general public, but none can say that these rules are not essential to the proper functioning of the organization. Restraints upon men in so serious a profession can hardly be too strict, even though there might come occasions when exceptions might be taken to their rigidity.

In the case in point here, the lay citizens would not, of course, be suspected of forming any judgment except that as in cases of differences it is an American privilege, if not a right, to sustain the majority. The medical faculty has its rules for the guidance of its practitioners, and we should say that every member of the organization is bound by this moral obligation to observe those rules and ethical standards; further, that if the time should come when any one or more members cannot do that, it is for him or them to get out and leave the majority to conduct the affairs of the organization as they may agree.

It is, therefore, disquieting when so conservative and so highly privileged a body of men as the doctors of a community cannot enforce the regime they themselves prescribe, to which every practitioner does or should subscribe.

In this emergency it is, perhaps, due the public that the state medical association institute an impartial inquiry in the issues involved, pronounce a fair verdict and set the seal of regularity on that faction offering most to the public weal and their due care of the public health.—*American Medical Association Bulletin*.

SAVING THE BABIES

Citizens who live in communities apathetic to their infant death rate should consider carefully the results of the cooperative rural health work now being carried on in Greene County, Missouri. A report just received by the United States Public Health Service at Washington shows a remarkable reduction in the infant mortality rate in Springfield and Campbell Townships since the establishment there of a whole-time county health department.

In 1918 the death rate in these two Missouri townships was 105 per thousand. That is, out of every 1,000 babies born alive, 105 died in that year. Then Greene county decided it could no longer afford to continue unmindful of its baby death rate and a health department was organized.

In the following year 1919, the infant death rate in these two townships dropped to 96 per thousand. In 1920 it went to 85, in 1921 to 76, and in 1922 the decline reached 61. In other words Springfield and Campbell townships reduced their infant mortality rate 42 per cent. within the short space of four years.

This forty-two per cent. reduction furnishes a striking example of what may be accomplished in infant welfare by carrying out, with economy and efficiency, a well balanced general program of health work affecting all age-sex groups in a community with a well administered health department under the direction of a whole-time health officer.

The example of Missouri in saving its babies should give cause to every citizen of other

communities not equipped with health departments or health officers giving their full time to the work. It is time for the thinking men and women who live in such communities to organize; time for them to shake off their indifference and set about earnestly to save the lives of babies born in such communities. A county health department under the direction of a full-time health officer is the first objective. Missouri is showing the way.

WARREN GAMALIEL HARDING

In the death of Warren Gamaliel Harding, twenty-ninth President of the United States, the nation is welded together by a common bond of grief.

It is a terrible thing to have a President die but to believe him out of danger and then suddenly to be informed of his death was a shock from which it will take the people of this country considerable time to recover. Affairs of the state and nation go on unhaltered but those who perform the public duties as well as those engaged in private business go on with a heavy heart and with a saddened outlook.

Mr. Harding had only begun to show himself as an unselfish worker for the common good when he was stricken. In his death we have discovered his greatness.

OPENING OF NEW MISSOURI PACIFIC HOSPITAL

The \$1,000,000 hospital at St. Louis, owned and built by the 40,000 employees of the Mis-



MISSOURI PACIFIC HOSPITAL

souri Pacific Railway, was formally opened and dedicated to their service by President L. W. Baldwin on the steps of the institution, July 26.

The hospital is the last word in completeness and efficiency. It has a capacity of 300 beds and can take care of any number of outpatients. It has six operating rooms with two dressing stations on every floor as well as a diet kitchen on each floor. Each wing of the building has a sun room where convalescents may sit. The hallways are made of cork flooring so that there is the minimum of noise. The operating rooms, hydrotherapeutic and Zander rooms, the clinic, in fact every nook and corner of the hospital is as modernly equipped as possible.

The roof garden at the top of the building is the loveliest imaginable. The view on one side is over the entire city, on the other is the beautiful Reservoir Park and one is up high enough to see the water rippling and flowing from one reservoir to the other. It surely is a place to make sick persons well and to inspire the well visitor with the desire to keep well.

Dr. Paul F. Vasterling is the chief surgeon of the Missouri Pacific System while Dr. R. D. Alexander is the surgeon in charge at the hospital.

AMENDMENTS TO THE CONSTITUTION AND BY-LAWS

On another page* we publish a communication from Dr. M. P. Overholser, Chairman of the Committee on the Revision of Constitution and By-Laws, inviting members and component societies to send the committee suggestions for changes in the organic law of the Association which might advance the interests of the Association and facilitate the conduct of our affairs. The committee is anxious to receive these suggestions at an early date so that a comprehensive report may be presented to the House of Delegates at the Springfield session next May.

SCHOLARSHIPS IN CHILD HEALTH WORK

To those physicians who are interested in better fitting themselves to qualify for child health work. The American Child Health Association offers an unusual opportunity. They have appropriated \$10,000 to be awarded in amounts determined by the character of work to be accomplished for scholarships in a choice of institutions with approved courses in child health work. The growing demand for more and better trained physicians in child

health work has made it necessary to do something of this sort.

The courses will be given during the school year of 1923-1924, and the summer of 1924. Application blanks and further information can be had by writing American Child Health Association, 370 Seventh Avenue, New York City.

BOOKS FOR LEISURE MOMENTS

*Reading with discrimination broadens the mind
and strengthens the mental grasp*

ORRICK JOHNS, author of a new novel "Blindfold" (Leiber and Lewis) is primarily a poet. His word pictures and rhythm of expression are lyrical in appeal. His imagery is clear and is not embellished but is beautiful nevertheless. It is hard to say just why the book appeals as strongly as it does. It is hard to say whom the story is about. But it is a pleasing story and despite its theme it is not sordid. Old Dr. Schottman, while playing a minor part in the drama, is still very clearly delineated and one comes to love him as the character of the baby he refuses to destroy is unfolded and we come to love her. While it is the author's first novel it is a decided success and it is hoped that more will be forthcoming. Those Missourians familiar with St. Louis will have no difficulty in recognizing the setting of the story.

DELIGHTFUL reading for Indian summer days is "The Alaskan," by James Oliver Curwood, who has no peer as a writer of the North (Cosmopolitan Book Corporation). It is a primitive story, simply told, of people who have really lived when the story is done.

AFTER the avalanche of sex novels and propaganda novels, "Under a Thousand Eyes," by Florence Bingham Livingston (Cosmopolitan Book Corporation) is refreshing. It is as though somebody opened a window and let some fresh air into an overheated room. It is the story of a girl who returns to her home town after several years in the city to find the people not as she had pictured them in her memory, but just people with their petty jealousies and trivial existences. But they are not just like all the other pictures of small town life. And it is in this that the secret of one's enjoyment of the book lies.

Few victims of golf ever wholly recover, writes Harry Leon Wilson, author of a rollicking little book, "So This Is Golf" (Cosmopolitan Book Corporation). The book deals

* See page 333.

with golf in its various phases and is written in Wilson's most pleasing style. Golf is a tender theme with which to deal, but Wilson has done it skillfully and has come through beautifully. Everyone from the dub to the man in the eighties or even the pros will enjoy this little book for it is brimming over with fun and good naturedness.

ISLAND of the Innocent, by Grant Overton (Geo. H. Doran Co.), is one of the best books of its kind of the year and the kind of which we need more. It is one of the frankest, most openly written book we have ever read and in the most delicate manner it deals with the thoughts, feelings and emotions of a young girl just awakening to sex life and sex attraction. How the author could fathom the depths of a young girl's soul and bring so clearly and nicely to the surface her inmost thoughts is marvelous. If you as a physician sometimes are puzzled about the real attitude toward things basic and primitive, of most young girls that come within your notice, this book should help you to understand, for it is surely true to life in every detail.

Aside from any real, material value the story may have for you, it is fascinating reading and will give you much in pleasure in return for the time spent with it.

NEWS NOTES

DR. GEORGE A. JOHNS, of St. Louis, recently appointed superintendent of the new St. Louis Training School for the Feeble-Minded, likes his new job but he was rather reluctant to give up his old one. He has been connected with the City Sanitarium for eighteen years, twelve of which were spent as its superintendent.

THE annual convention of The American Roentgen Ray Society will be held in Chicago with headquarters at the Congress Hotel, September 18 to 21. A number of eminent foreign contributors will appear on the program, and the announcements indicate that treatment by high voltage X-ray will have a prominent place on the program.

AFTER spending several successful years in the U. S. Public Health Service, Dr. Frederick C. E. Kuhlmann, formerly of St. Louis, has resigned and will resume practise in St. Louis County. He has offices in Webster Groves in the Goreland Building, 111 West Lockwood Avenue. Dr. Kuhlmann's many friends will welcome his return.

ST. LOUIS is to be a permanent airport, due to the efforts of the St. Louis Air Board who are spending \$200,000 in equipping St. Louis Field and getting it ready for the International Air Races to be held there in October. Flyers from all parts of the world are expected and arrangements are now under way to accommodate the vast number of people expected to witness the races.

DR. JABEZ N. JACKSON, of Kansas City, was the guest of honor and principal speaker at an all-day meeting of the Dallas County Medical Society, Dallas, Texas, on August 23. Dr. Jackson operated on a cancer of the breast and some abdominal cases in the morning, and delivered an address at the afternoon session, and took part in the dedication of the New Methodist Hospital of Dallas in the evening.

ORIGINAL plans of the Veterans' Bureau to install a negro personnel at the new negro Veterans' Hospital at Tuskegee, Alabama, have been carried out. A staff of six negro physicians has been selected with a negro superintendent. There was some protest by the white population of Tuskegee and demands were made that a white personnel be appointed but a satisfactory settlement has been reached and plans will be carried out as first outlined.

GOVERNOR HYDE has appointed the following as members of the new Nurses Board under the revised Nurses Law passed at the last session of the legislature: Miss Bella O'Neill of Mullanphy Hospital, St. Louis; Miss Louise Ament, of the Lutheran Hospital, St. Louis; Miss Rose Hales, St. Joseph; and Miss Mary G. Bearman, of Kansas City. Governor Hyde will establish a new precedent by appointing a physician a member of the board but so far the appointment has not been announced.

THE counties of Cass, Bates, Henry, Johnson, Lafayette and Vernon have started a movement that gives promise of producing unusually interesting meetings from the fact that the societies in these counties will meet jointly for scientific work at stated intervals. The purpose of the joint meetings is to enlarge the scope of topics for discussion and to bring together the physicians of near-by counties for social intercourse. The first meeting was held at Warrensburg, the next meeting at Odessa, and the third meeting will be held at Harrisonville, September 13.

MRS. GORGAS, the widow of former Surgeon General William Crawford Gorgas, whose conquest of yellow fever made the tropics habit-

able for the white race, is collaborating with Mr. Burton J. Hendrick, the author of "The Life and Letters of Walter H. Page," in preparing a biography of General Gorgas. The life of the great surgeon, whose achievement is perhaps the most dramatic advance in the science of medicine since Pasteur, is so full of significant and picturesque material that the work is progressing slowly, but Doubleday, Page & Company hope to publish it during the coming year.

THE annual assembly of the Tri-State Medical Association of Iowa, Illinois, Wisconsin and Minnesota, will be held at Des Moines, Iowa, October 29, 30, 31 and November 1. The entire time of the assembly will be taken up with scientific addresses, essays, symposiums and diagnostic clinics.

The following Missouri physicians have accepted a place on the program: Drs. Everts A. Graham, William McKim Marriott, Ernest Sachs, Willard Bartlett, all of St. Louis.

Missouri physicians who are in good standing in the State Medical Association, have been extended a most cordial invitation to attend.

ANOTHER firm of advertising doctors in St. Louis, has been forced to close its door as a result of the strenuous campaign waged by the St. Louis *Star* and Health Commissioner Starkloff. The Colon Laboratories advertised a "Radio Active Omage Master Machine, The World's Wonder" as a cure-all for every disease under the sun, but it will no longer cure as the health department has been notified that the machine has been removed and all persons connected with the establishment discharged.

The results of the campaign to date are as follows:

The sudden departure from St. Louis of the Associated Doctors and the issuance of warrants for the arrest of William M. Kemp, head of the concern.

Closing of the Electro Medical Offices conducted by Dr. Henry W. Baskette.

Announcement by Dr. E. L. Cooley that he had closed his office.

Issuance of warrants for the arrest of F. C. Blattner, part owner of the European Clinic, charging him with practicing medicine without a license, and the announcement by Dr. J. French, Blattner's partner that the European Clinic had closed.

THE newly formed Kansas City Clinical Society will entertain the Medical Association of the Southwest with a clinical program of unusual interest from October 8 to 13, at Kansas City.

Sectional specialty clinics and conferences

are being promoted by the following specialty societies in Kansas City: The Kansas City Eye, Ear, Nose and Throat Society; The Roentgen Club of Kansas City; The Kansas City Pathological Club; The Urologic Club of Kansas City; The Kansas City Obstetrical Society; The Kansas City Pediatric Club, and others.

There is an unusually strong list of distinguished men who will be guests and who will furnish the programs to be held at Convention Hall. The list comprises: Drs. John B. Deaver, Philadelphia; Joel Goldthwait, Boston; Lewellys Barker, Baltimore; J. Whitridge Williams, Baltimore; Joseph Beck, Chicago; J. H. Cunningham, Chicago; Peter Bassoe, Chicago; Jay Frank Schamberg, Philadelphia; Ruben Peterson, Ann Arbor; F. M. Pottenger, Monrovia, California; Henry Dwight Chapin, New York.

Aside from the scientific programs arranged, there are many entertainments planned both for the attending physicians and their families.

THE spirit of modern medicine is scientific; it seeks to be open-minded toward new truth, provided this can be rationally related to the great body of firmly established and organized knowledge about nature, life, and mind, about which all scientific men agree. Scientific medicine cannot accept ideas which are merely mystical, or imply unknown and unverifiable physical or chemical properties, or invoke supernatural intervention, or are in other ways clearly fantastic or beyond the reach of any available demonstration or experiment. So also modern medicine refuses to be labeled with the name of any school or cult. It is committed to no "opathy"; it knows no panacea; it is prejudiced only in favor of conclusions drawn by soundly reasoned processes from exact and verified facts. It recognizes the intricacy of its problems; it realizes that only a beginning has been made; it does not hesitate to admit ignorance or to suspend judgment. Its constant aim is the discovery of truth and its application to human need. These ideas, it must be admitted, are the conscious principles of a relatively small number of the medical men of the world. But the modern scientific spirit is permeating the great body of practitioners who have in the past too much relied upon dogmatic diagnosis, rule-of-thumb, "shotgun" prescriptions, and a cheerful bedside manner. The personality and attitude of the physician toward his patients ought to be important sources of power and success but they should supplement rather than take the place of the scientific method and spirit.—Dr. George E. Vincent, *Rockefeller Foundation Review*, 1922.

THE Canadian Government has awarded Dr. F. G. Banting a life annuity of \$7,500 as the discoverer of insulin. In commenting on the award, the New York *Times* points out that professional ethics prevents Dr. Banting from exploiting the commercial possibilities of the remedy and that fame will not pay grocers' bills. "The amount suggested as his honorarium seems large only because such appropriations of public funds are so rare. After all, it is only the interest on \$150,000, and compared with the fortunes made by other inventors—the Fords, the Edisons, the McCormicks and their like—it seems absurdly small." The *Times* urges that the action taken by Canada be an example to the rest of the world. "National governments have a duty in this matter, and one which they rarely have recognized. For the most part they have left the maintenance of scientific research to the generosity of individuals or of the few private corporations which have arrived at a realization of what 'pure science' can do for them. . . . A government, if conducted with sufficient intelligence, would change all this. It would establish facilities for determining just what men had rendered or were likely to render services so widely beneficial that everybody should be expected to pay for them. Then it should make due provision for acquiring a discovery or invention of general benefit and offering it freely to anybody in the country, or in the world, who wants to use it." In a recent address before the British Science Guild, Sir Ronald Ross, noted for his discoveries in relation to the control of malaria, also drew attention to the neglect accorded scientists in his country and the United States:

One of the worst cases was that of W. M. W. Haffkine, who in 1896 discovered the inoculation treatment to cure cholera and plague in India. Not being a medical man, Mr. Haffkine could have patented his discovery and made a fortune. But he set to work to manufacture millions of tubes of this vaccine, and thereby saved millions of lives. An accident occurred, and although he was not responsible, he was made the scapegoat by the authorities in India. He was hounded out of the country, and came home, so to speak, fettered with the chains of Columbus about his feet. He was treated vilely—and he was one of the greatest benefactors of the last century. . . . Walter Reed, the American, who discovered that yellow fever was carried by the mosquito, was given some menial employment, feeling pulses, administering castor oil, and looking at dirty tongues for a couple of years. And he was allowed to die apprehensive as to how his wife and family could sustain life.

Sir Ronald advised that there should be some state compensation for the research worker

who contributes his work for the benefit of all mankind. It is encouraging to find this development of a sound public opinion in favor of properly rewarding scientists. Discoveries such as that of insulin are not made every day or even every decade. The watchdogs of the public treasury need fear no great drain on the public purse from such awards; and, even if there were a drain, the saving in lives and in the cost of disease would more than compensate for the sums expended.—*Jour. A. M. A.*, August 4, 1923.

OBITUARY

JACOB M. MILEM, M.D.

Dr. J. A. Milem, of Saxon, Missouri, a graduate of the University of Louisville, Medical College in 1896, died June 6, 1923, after a long illness, aged 56 years. He was a member of Scott County Medical Society and a Fellow of the American Medical Association.

ROBERT F. AMYX, M.D.

In the death of Dr. Robert F. Amyx, of St. Louis, on August 5, 1923, the profession has lost a man who was devoted to his calling and applied himself assiduously to the work of healing the sick. He graduated from the Marion-Sims Medical School (now St. Louis University Medical School) in 1897 and immediately entered private practice in St. Louis. Early in his professional life he joined the St. Louis Medical Society and was an active member during his entire career. He was 58 years old.

CORRESPONDENCE

SUGGESTIONS INVITED FOR CHANGES IN CONSTITUTION AND BY-LAWS.

HARRISONVILLE, Mo., August 15, 1923.

To the Editor:—The committee on Constitution and By-Laws desires to give the members of our state organization an opportunity to make suggestions in the revision of our constitution and by-laws.

We would be pleased to have suggestions of changes deemed for the best interests of our organization made to this committee by any of the officers of our state organization, from local medical societies, or from individual members. This committee desires to have these suggestions at as early a date as possible. All members who desire to offer recommen-

dations should send them to one of the members of this committee.

M. P. OVERHOLSER, Harrisonville,
Chairman.

JABEZ N. JACKSON, Kansas City,
W. A. CLARK, Jefferson City,
J. E. THORNTON, Columbia,
J. FRANKLIN WELCH, Salisbury,
The Committee.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL, FOR 1923

(UNDER THIS HEAD WE LIST THE SOCIETIES WHICH HAVE PAID THE STATE ASSESSMENT FOR ALL THEIR MEMBERS)

Chariton County Medical Society, December 31, 1922.

Webster County Medical Society, January 6, 1923.

Madison County Medical Society, January 15, 1923.

Cape Girardeau Medical Society, January 23, 1923.

Camden County Medical Society, February 1, 1923.

Clark County Medical Society, March 5, 1923.

Perry County Medical Society, March 27, 1923.

Vernon County Medical Society, April 7, 1923.

Schuylerville Medical Society, May 3, 1923.

BOONE COUNTY MEDICAL SOCIETY

The regular monthly meeting of the Boone County Medical Society was called to order at 8 p. m., August 7, at Columbia, by President Robinson. The minutes of the July meeting were read and approved. The board of censors reported favorably on the application of Dr. Rummel and he was unanimously elected to membership in the Society. The report of the committee in charge of the Tri-County staff meeting held at Columbia, July 10, was adopted.

A communication from the Kansas City Clinical Society was read. An invitation from the Audrain County Medical Society to attend a meeting and banquet held at Mexico on July 31, was read, the members having been previously notified by telephone. Those who attended reported a splendid meeting.

Letters from the Secretary of the American Medical Association and the Secretary of the Missouri State Medical Association were read and discussed. On motion it was agreed to await taking definite action on the Legislative Bureau until the September meeting.

President Robinson, upon approval of the Society, appointed a committee composed of Drs. Fischer, Rummell, Sneed, Battersby and Robinett, to conduct a baby contest and clinic at Hallsville, September 12, with three counties participating.

Members due on the September program are Drs. Dudley, Conley, and Shaefer who will present clinical cases.

WILLIAM O. FISCHER, M.D., Secretary.

JOINT MEETINGS OF COUNTY SOCIETIES

Members of several county societies met at Warrensburg, July 16, and spent the day in the discussion of scientific topics and the examination of patients presented at the Warrensburg clinic. The counties represented were Cass, Henry, Johnson, and Lafay-

ette. Resolutions were adopted favoring the continuance of the joint meetings of these societies and an invitation was extended to Bates and Vernon counties to become identified with the movement.

Dr. P. T. Bohan, of Kansas City, discussed a number of cases that aroused a great deal of interesting discussion. One case was illustrated with X-ray plates taken by Dr. W. G. Thompson, of Warrensburg.

Our president, Dr. G. Wilse Robinson, of Kansas City, addressed the meeting, telling the members of his expectations of good work to be done during his term of office, and appealing to them to remain loyal and faithful to their organization and to their profession, for only in this manner can the organization make progress in its purpose of protecting the members and benefiting the public.

The Secretary of the Association, Dr. E. J. Goodwin, of St. Louis, was also present and in a brief talk described the work done at the legislature and mentioned some of the problems that will confront us in the forthcoming session.

Those present were: Drs. J. W. Burgess, Higginsville; E. A. Hoefer, Higginsville; W. E. Johnson, Warrensburg, S. W. Poague, Clinton; J. R. Hampton, Clinton; W. A. Braecklein, Higginsville; R. D. Haire, Clinton; G. S. Walker, Clinton; J. W. Bolton, Warrensburg; W. C. Webb, Higginsville; E. J. Goodwin, St. Louis; G. Wilse Robinson, Kansas City; M. P. Overholser, Harrisonville; J. S. Triplett, Harrisonville; W. G. Thompson, Warrensburg; E. Y. Pare, Leeton; T. J. Draper, Warrensburg; L. J. Schofield, Warrensburg; C. S. Hyatt, Center View; William R. Patterson, Warrensburg; J. P. McCann, Warrensburg; O. B. Hall, Warrensburg; P. T. Bohan, Kansas City.

BOOK REVIEWS

CLINICAL LABORATORY METHODS. By Russell Landram Haden, M. A., M. D., Associate Professor of Medicine, University of Kansas School of Medicine, Kansas City, Kas., etc. With 69 illustrations and five color plates. C. V. Mosby Co., St. Louis. 1923. Price \$3.75.

This manual of laboratory methods will be found quite useful to those who are looking for a quick reference guide to the usual laboratory procedures. The writer emphasizes the necessity of the preparation of the various reagents and solutions used in the commoner tests. The procedures are clearly set forth and have clearly in many instances the writer's individual experiences to back them up. Beginners in laboratory methods and others who wish to have a handy manual will find this a valuable addition to their library. The subjects are briefly treated, true, but the author could not otherwise have covered this wide range of subjects in 280 pages.—R. B. H. G.

ESSENTIALS OF SURGERY. Lippincott's Nursing Manuals. By Archibald Leete McDonald, M.D., The Johns Hopkins University, etc. 49 illustrations. Second Edition Revised. Philadelphia and London. J. B. Lippincott Company. 1923.

This is a splendid textbook for those who do surgical nursing—nurses in training and in practice. The author, however, seems to have in mind only those who are working in hospitals or in such environment where surgeons and surgical supplies and surgical appliances are readily obtainable. No thought seems to have been given to the nurse who by reason of circumstances is obliged to attend accident cases or prepare for surgical operation or prepare surgical dressings for cases in surgical nursing located many miles from surgical supplies. We find nothing on artificial respiration.

J. J. L.

THE JOURNAL

OF THE

Missouri State Medical Association

The Official Organ of the State Association and Affiliated County Societies
Issued Monthly under direction of the Publication Committee

Volume XX

ST. LOUIS, Mo., OCTOBER, 1923.

NUMBER 10

E. J. GOODWIN, M. D., EDITOR
3529 Pine St., St. Louis, Mo.

PUBLICATION COMMITTEE { W. H. BREUER, M. D., Chairman
S. P. CHILD, M. D.
M. A. BLISS, M. D.

ORIGINAL ARTICLES

SECONDARY OPERATIONS FOR THYRO- TOXICOSIS*

EDWARD G. BLAIR, M.D.,
and

KERWIN KINARD, M.D.,
KANSAS CITY, MO.

With increased recognition of thyroid disorders and their diverse symptoms by our world-wide professional colleagues, and with the increased surgical activity at the present time directed against the pathological conditions arising in these glands, a very pertinent question has arisen in the minds of these subjects for operation, viz., can my goitre grow again? Is there ever need of a secondary operation? These people demand definite treatment for thyroid disease and frankly ask the relative value of medical treatment and surgery for goitres.

Strictly speaking, the regeneration of a thyroid gland is as impossible as the restoration of an amputated finger; but not infrequently conditions do obtain after operation which are tantamount, to the patient, to a return of the offending condition; and it is essential to the operator essaying to *cure* goitres by surgical procedure that he be well advised of these possibilities, and, if possible, avoid them.

The conditions which primarily exist in pathological glands, and which may demand a second, or even a third operation, are practically three in number. The most offending of these three is found in the adenomatous type, where the gland is involved throughout by glandular proliferation, and from which a varying portion of the gland has been removed; and in which the process continues in the residue of gland left undisturbed. This form of *return of the goitre* is chiefly disappointing because of the resultant cosmetic defect after having undergone an operation. The second condition is found in the colloidal goitre where a portion of the gland has been removed with anticipation of a recession in the part remaining, but

where it persists in a deforming irregularity with the further possibility of later developing toxicity. The third need of a further operation, after the primary one, may be found in any hyperplastic gland where an insufficient amount of gland tissue has been removed to effect relief of symptoms of toxemia.

We are convinced that all goitres begin as colloid goitres, which increase in size by hypertrophy because there is deposited within the acini an increased amount of colloid material. To accommodate this increase, the cells lining the acini become more columnar and their cellular nuclei perhaps enlarge. From such a goitre, if any symptoms or signs are present, they are due to pressure. But, most often because of its cosmetic defects, the patient is found seeking medical assistance. We recognize this type as the adolescent goitre without toxic symptoms, and it may disappear spontaneously, or after medication, and result in no further disturbance to the patient. On the other hand, it may not disappear but may persist for a sufficiently long time to permit of a slight increase in the number of the cells lining the acini; or, in some cases, an increase in the interstitial cells forming the frame-work of the gland, with or without the production of new acini. Where such acini are believed to have resulted from interstitial proliferation, there may be found within these walls new colloid substance.

All these proliferative forms are hyperplastic, and with any degree of hyperplasia, however small, we find some resultant hyperthyroidism, just as we believe that, without hyperplasia, we find no hyperthyroidism. The former type results in an adenomatous colloid goitre, while the latter is responsible largely for irregular types of former fruste.

Hyperplasia may assume different forms, as it grows from the acinal walls or interstitial tissue. One form of hyperplasia consists of a papillary epithelial proliferation of cells, which is found within the acini, taking up all their space so that there is practically no area remaining in the gland involved for storage or accumulation of colloid material. Such an hyperplasia is always associated with exoph-

thalmic goitre and is supposed to be the only type of gland in which true exophthalmos is found.

Another form of hyperplasia which we will consider consists in proliferation of the acinal cells, either into the lumina of the acini, or between the walls of the acini and into the interstitial framework. Both these forms constitute the adenomatous type of goitre, and this type of hyperplasia usually has associated with it, sooner or later, certain forms of degeneration, and occasionally degeneration with secondary proliferation. *With the degeneration of any goitre there seems to be formed an altered secretion which is extremely toxic to the heart and nervous system, and this is specially true of the old adenomatous colloid goitres.*

We believe, with others, that this altered secretion is a substance differing from the normal excessive hormone poured into the system from the early frank hyperplasia of the undegenerated colloid goitre. True hyperplasia, we believe, gives a toxemia which may be designated hyperthyroidism. The degenerated hyperplastic gland, with perhaps its leukomains as part of the altered secretion, seems to be very toxic, and from these mixed toxins ensue the more severe grades of hyperthyroidism, which we may call thyrotoxicoses. Just when hyperthyroidism merges into thyrotoxicosis is probably dependent on the onset and length of duration, as well as the extent of the degeneration to which the hyperplasia has been subjected. The changed secretion of the degenerated hyperplastic thyroid, which seems to be so different in its toxic effects from the secretion of the incipient hyperplasia, may be caused by some poison of its own, or it may cause in some way an alteration to the adrenals or other endocrine glands, rendering some change to their physiological chemistry with the resultant thyrotoxicosis, essentially so dangerous because of its evident affinity for the heart muscle and central nervous system, as well as other tissues.

In an operative experience of 1,234 cases we have encountered the need of secondary surgical procedures in 23 cases. Two have been in the colloidal types, three in exophthalmic goitres and eighteen in the adenomatous types. In nine of the cases the initial operation was done by other operators and mostly in the largest goitre clinics in the United States; fourteen were our own cases. The reason for making this differentiation is to indicate that in the inception of goitre surgery apparently all operators failed to recognize this possibility. Most of these cases resulted from the early efforts of the operators. In the effort to reduce the time of operation only the main mass of an adenomatous goitre was attacked, and the remaining

portion was not inspected. Then, too, there was ever present the fear of removing too much of the thyroid tissue; particularly was this a factor in the colloid and adenomatous types. With the observations made, as time advanced, it became evident that the results were not always satisfactory. Some question arose as to whether the results in these cases justified the risks.

In the last few years it has been demonstrated that the subsequent operation is a safe and satisfactory step, only one fatality having occurred in our twenty-three cases. This occurred on the fourth post-operative day, supposedly from pulmonary embolism.

In considering the recurrence of the gland after operation, it may be safely said that this feature depends largely upon two factors: first, the amount and location of gland tissue diseased; second, the experience of the operator.

Discussing the first factor, we believe that, with a thoroughly degenerated adenomatous colloid goitre, the probability of recurrence will be present potentially in every case.

We believe that in the exophthalmic having one lobe more seriously affected than the other, a cure may be effected by lobectomy of the badly diseased lobe and resection of a part of the opposite lobe, usually found near the lower pole.

We further believe that a recurrent goitre may be operated on with comparative safety if the perverted secretion has not caused a thyrotoxicosis for too long a period. This may be true, likewise, in further recurrence for a third operation, of which we have had three successful cases.

In the adenomatous type with more or less complete involvement of the thyroid, it was early evident that the operation was unsatisfactory because of the asymmetry resulting from thoroughly clearing one side of the neck leaving a large mass of irregular thyroid tissue in the other; some effort was made to correct this by placing several deep sutures horizontally into the projecting portion of the gland nearest the median line, tying them tightly, and thus strangling such portions as were enclosed by the sutures. This procedure was of only slight benefit and did not prevent the further growth of adenomatous masses with degeneration, which occurred in the portion left undisturbed. It did, however, encourage the excision of certain isolated gland projections; and was the inspiration to what later became a complete resection of the remaining lobe.

This resection for recurrence is now definitely and satisfactorily accomplished in two different ways. If the gland is in lobulated formation from above downwards, as is frequently the case (Group I, Sketch 1) then the

most involved or degenerated portion of the gland is selected for complete removal. In the remaining lobules the most prominent one is

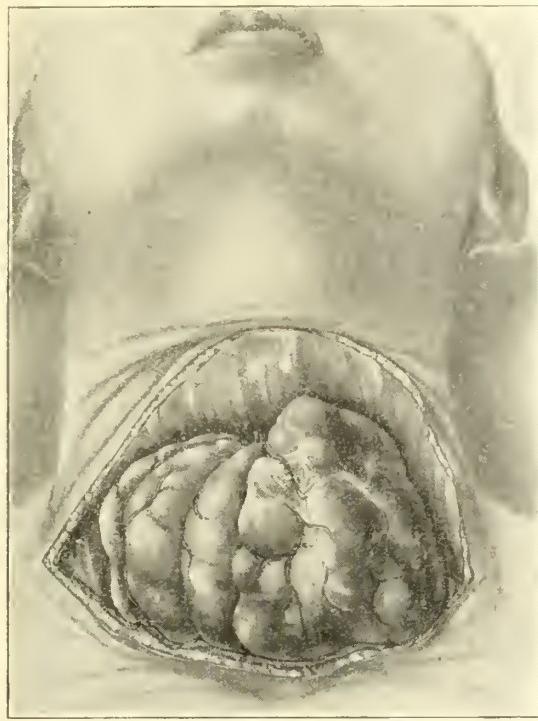


Fig. 1. Group 1, Sketch 1. Large bilateral toxic adenomatous goiter; the larger left mass was selected for primary removal. (Sketched from actual operation.)

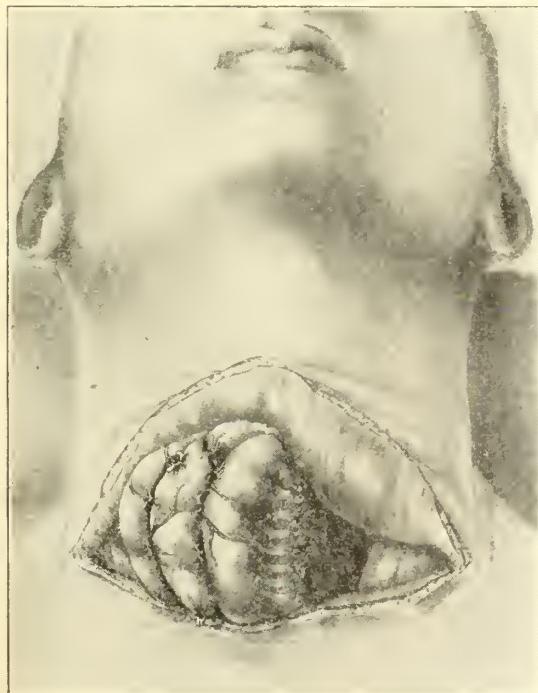


Fig. 2. Group 1, Sketch 2. The left mass removed and encircling sutures placed about the middle lobe of the residue preliminary to resection.

selected for excision; and about it, in the contiguous thyroid tissue, a chain of deep sutures is thrown and tied (Group I, Sketch 2) shutting off the blood supply, in a measure, from the portion to be removed; then the excision is made as the index finger lifts up on the posterior surface of the gland. As the deeper levels are reached the blood supply is not always under control from the preliminary suturing, and one must be prepared to add mattress sutures or others, as need arises. When this step has been completed and all active bleeding has been brought under control, through and through sutures are placed in the sectional surfaces and the opening closed (Group I, Sketch 3) thereby further overcoming any

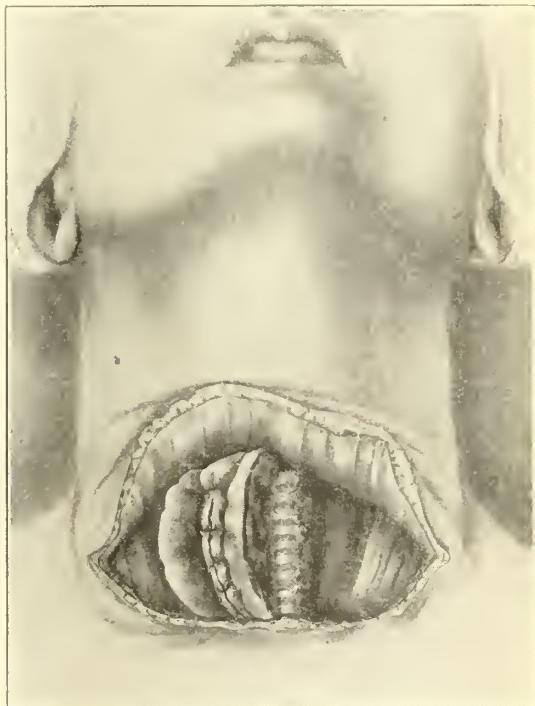


Fig. 3. Group 1, Sketch 3. Excision of middle lobe of right residue and closure with transverse sutures and resection of the median lobe without further suturing, leaving only untouched the best lobe of the right residue.

tendency to ooze, or a controlling suture to slip or cut out. In like manner more than one lobule can be removed.

A word of caution is here offered to the novice in thyroid surgery in attempting this performance lest uncomfortable bleeding ensue. Some knowledge must be had of the friability of the tissue; of how much pressure the tissue will bear from the sutures and where they should be placed. Such judgment only experience in goitre surgery will afford.

In the gland formation where no lobulation exists, but the mass is only an irregular structure made up of numerous small adenomatous foci, with little selection of the portion to be

sacrificed, the resection should be a horizontal one of either an upper or a lower segment complete, according to which is the better tissue to leave. This section is fortified by a single cross chain of deep sutures and a ligation of the upper or lower pole leading to the segment taken away. (Case II, Sketch 3.)

Utilizing again the value of experience, if the operator will make some little search he may discover a portion of normal thyroid tissue with an easy line of cleavage which makes this discard of the adenomatous portion comparatively easy. To be sure a portion of normal thyroid is often found thinned out and distorted and one must be sure of his struc-

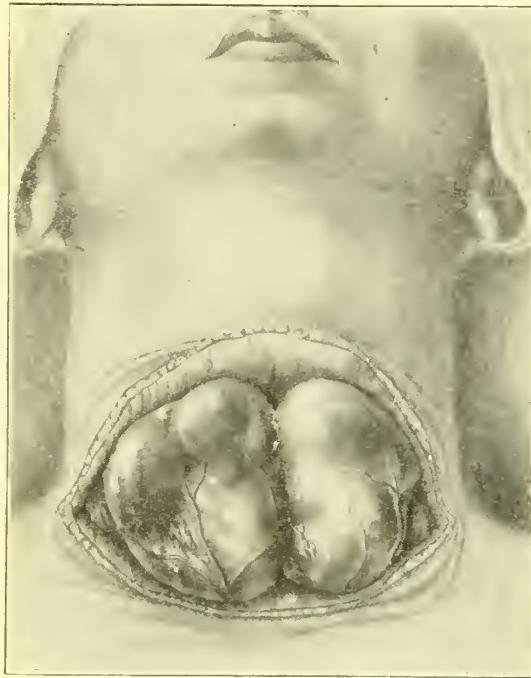


Fig. 4. Group 2, Sketch 1. Large bilateral toxic adenomatous goiter; the right mass selected for primary removal. (Sketched from actual operation.)

ture before making too great a sacrifice of tissue.

In a measure, having established the feasibility of resecting the thyroid gland under all operable conditions, the procedures are much the same as confront the plastic surgeon. Judgment must be directed during the operation to suit the formation and the character of the tissue, and as an essential adjunct to this fact the question necessarily follows: How much of the gland can be removed? It is our experience that this cannot be answered by measurements of portions. This again is a matter of judgment founded upon the history of the case and the character of the tissue as grossly revealed. This much has been established: that more can be safely taken away than has been commonly set down by the rule. The

more toxic a case is, or the more degenerate a gland is found to be, the greater should be the sacrifice of such tissue. As age advances there is manifestly less need of thyroid tissue; in fact, it is possible for a human being to live

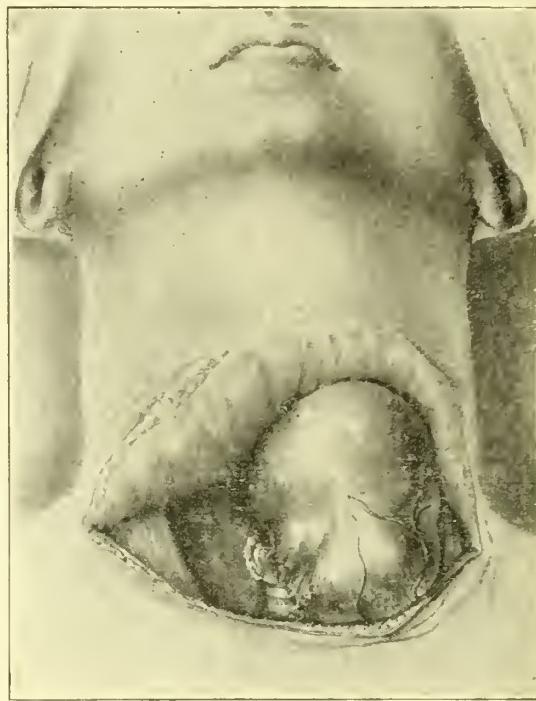


Fig. 5. Group 2, Sketch 2. The right mass has been removed, except a portion of fairly good thyroid tissue, and presents the left residue mass for horizontal resection.

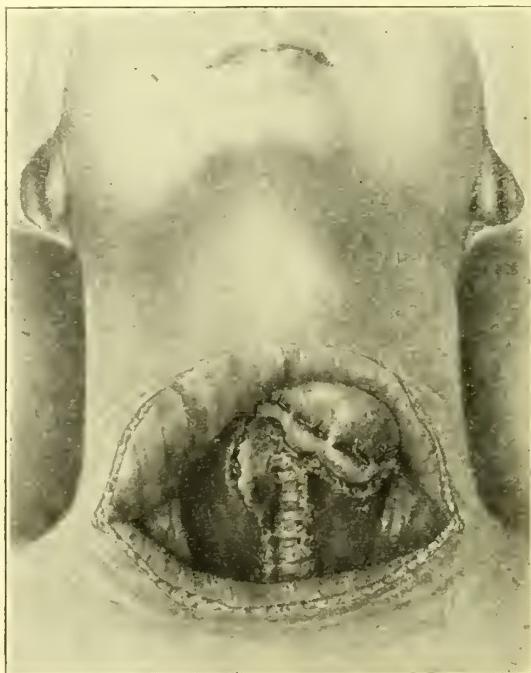


Fig. 6. Group 2, Sketch 3. Sutures placed and tied and resection of lower two-thirds of the left mass.

with practically no thyroid tissue, if it be not all removed in one operation and an essential amount of glandular therapy furnished to the system afterwards. These facts are specifically demonstrated in one outstanding case as reported herewith. Other observations have given us the same impression.

Case.—Miss P. K., dressmaker, age 62, single, white, American. Family history negative. Personal history, negative, except that in adolescence she developed a goiter which, while in evidence, remained quiescent until about the age of 50 years. At the age of 54 years a central mass of considerable size was removed (by another surgeon) and the lateral lobes evidently were not disturbed. After a few months it began to enlarge again slowly on both sides. Eight years later we performed a secondary operation for a large, degenerated bilateral adenomatous development. Without careful inspection of the entire gland prior to lobectomy the right mass was removed, presuming it to be the major portion. On examination of the left portion, however, a much larger growth was detected substernally, which was depressed deeply toward the spine, for which reason it was not at first glance in evidence. On delivery from the neck it was found so totally degenerated, with hemorrhagic areas and calcareous infiltration, that we dared not leave it in; and yet we hesitated to remove the entire gland. As there was no alternative, practically all of the gland was taken, except small fragments left as substantial stumps for ligation at the poles. These were, of course, strangulated. The paratracheal areas containing what we hoped to be the parathyroid glands were carefully ligated so no injury would result to the parathyroids.

This patient was immediately put on a glandular therapy following operation, and she left the hospital about ten days afterwards. Discontinued medication.

She seemed to do well at home for several days and then became weak and had twitching of her muscles, particularly of the arms and legs. Her weakness grew rapidly and she became cachectic and emaciated and developed concurrently night sweats. In a few weeks she had become so weak and nervous that she could scarcely lift her head. In this condition we found her about three weeks after she had left the hospital.

She was slightly cyanotic, and had a rapid weak pulse, with a slightly subnormal temperature, nauseated and complained of a tightness in her chest which caused labored breathing and gave her a fear of impending death.

She was at once put on her medication and recovered slowly, under treatment, in about three months. Since then she has been perfectly well so long as she takes her thyroid and parathyroid capsules, but feels the return of the old symptoms when she leaves off.

She did not do well on thyroxin and had to be put back on thyroid medication.

Today, about one and a half years since her operation, she is better, she says, than she had been for twenty years prior to operation.

From the foregoing we wish to conclude with the following observations:

CONCLUSIONS

1. That hyperthyroidism is the result of the secretion from hyperplastic goitres. That the amount of hyperplasia determines the amount of hyperthyroidism.

2. That the type of poison which causes

the marked cardiac muscular degeneration and central nervous system deterioration, if not the entire organism, is dependent upon altered thyroid secretions. That these altered secretions may be due to the degeneration of hyperplastic goitres with formation of leukomains, or again by some action on the other endocrines, the chief of which are the adrenals, causing lost or changed functions to them.

3. That the secondary operations may be definitely deferred by not waiting for involvement of the entire gland thereby recommending earlier but less radical operation.

4. That the rule of thumb cannot be used successfully in thyroid surgery as to how much gland shall be removed. This depends entirely upon the experience of the operator, as does the result of the operation.

5. That more thyroid tissue can be successfully removed at a secondary operation than is now generally supposed.

6. That secondary operations can be successfully performed. That these should be performed when, if not before, signs of thyrotoxicosis appear.

402-404 Bryant Bldg.

DR. BLAIR, in closing: Someone has said, "there is nothing new in human affairs except mostly that which has been forgotten." It is somewhat in that spirit that Dr. Kinard and I have presented this paper. It represents more an evolution of our experience, commencing with my own some eighteen years ago, and covering an operative experience of more than 1,200 cases, with an observation of about 4,000 cases of goiter. We rather wished to emphasize the importance of avoiding the secondary operations, if possible, or their advisability if not avoided.

Calling attention to the statements of Dr. Mastin: First, the ratio he states of four and one-half women to one man. Our experience has not borne out that observation. Other literature I have seen places it at one to eight. In our 4,000 observations we have only observed 48 cases of goiter in men. Whether because of the locality or not, this is a great disparity, as far as the ratio goes, to that ordinarily published in literature.

As to another statement of his that only 30 per cent. of cases presented were ready for operation, I want to ask if those were toxic, or all cases.

DR. MASTIN: Exophthalmic.

DR. BLAIR: That is somewhat different from the impression I first received that they were all types of cases. Even that proportion, it seems to me from the experience we have had, is very low indeed. Some years ago—and I have no reason to change this idea materially—it was my habit to say about 85 per cent. of all cases presented—toxic or non-toxic—were absolutely safe for operation. No mortalities would occur in that percentage. There were 10 per cent. that were doubtful—this was before metabolism came in as a test. Most of those 10 per cent. were good. It was absolutely impossible to say which were good and which bad. They were always attended with many surprises. At that time, 5 per cent. were placed as inoperable cases. I should reduce the inoperable number to about 3 per cent. of all cases seen. When I say that, I mean it is a very rare thing for us to reject any case for operation. I cannot recall one in the last five years until at the

present time we have a case under observation which I doubt if we will operate because of the mental attitude—a symptom when existing in a goiterous condition I regard as serious.

As to the value of the X-ray, I have always been inclined, perhaps unreasonably so and with obstinacy, to regard it as valueless as a cure for goiter, even of doubtful value as a preliminary measure before operation. We have not resorted to it in our cases. It is doubtful and requires a great deal of time, as well as expense, as a preliminary measure.

In the first 500 cases I have operated on, 43 per cent. reported having taken some preliminary electrical treatments—presumably mostly X-ray, although at that time galvanism was still instituted for the cure of goiters by some men in this country. The 43 per cent. is not wholly fair to the value, whatever there is, of the X-ray treatment of goiter, because many of these cases naturally discontinued treatment or were indifferent about it and did not follow it, up as they are likely to do under any treatment that does not yield quick results.

As to the value of X-ray in malignancy, I am sorry to say I have not been able to place any appreciation of it whatever. I think my colleague also shares that opinion. Neither can I offer surgery with any better grace. All our cases of malignancy we have seen during this period that have been subject to X-ray treatment—even deep X-ray therapy—are now dead, with the exception of one which I am sure will progress along the same line.

ESSENTIAL FACTORS IN THE TREATMENT OF INTESTINAL OBSTRUCTION*

THOMAS G. ORR, M.D.

and

RUSSELL L. HADEN, M.D.

KANSAS CITY, MO.

In a consideration of the treatment of acute intestinal obstruction four chief factors present themselves for study. They are, the mechanical obstruction itself, the dehydration, the starvation and the toxemia. Unless the treatment is considered from all of these standpoints the patient is not receiving the care to which he is entitled. With a death rate which, with most surgeons, is greater than 50 per cent., an exhaustive study of the therapy of this disease is quite pertinent for most of us.

MECHANICAL OBSTRUCTION

To remove the mechanical obstruction is always indicated and must be done before a patient can be cured of intestinal obstruction. Just when an attempt should be made to do this is worthy of some careful thought. Generally speaking the obstruction should be relieved as early as possible after the onset of the symptoms. The great strain of operation in this condition is well known to all surgeons. The general condition of the patient must be carefully studied with reference to the location

of the obstruction and the severity of the dehydration, starvation and toxemia. Perhaps sometimes we operate too soon. It is probable that we sometimes do a complete operation when an enterostomy would be the wiser procedure. In the very toxic cases the least operation possible to relieve the obstructed bowel, the better. If a bowel will not empty through a good enterostomy opening it will not empty through the natural bowel channel which has been relieved of obstruction. If an operation for the complete relief of the obstruction, whether it be freeing of a constricted gut, a resection or an anastomosis, is not considered advisable, an enterostomy should be done. In most instances a jejunostomy is the enterostomy of choice.

The operation should be done, when possible, under local anesthesia. A rubber tube of sufficient size to permit drainage should be inserted into the gut in a manner that will avoid any leakage into the peritoneal cavity. McKinnon¹ and others use a double purse string suture. By this method the opening will usually close spontaneously after the obstruction is relieved and the tube removed. If an enterostomy is done as a preliminary procedure to drain the bowel, the complete operation should be done as soon as the intestine has regained its tone and the general condition of the patient has improved.

DEHYDRATION

Loss of liquid in acute intestinal obstruction is quite rapid and often extreme. Hartwell and Houget² have attributed the cause of death to dehydration. It is certainly a contributing cause. When one recalls that 75 to 80 per cent. of the body is water, the importance of its function is evident.

In health water is ingested and excreted in balanced quantities. Thirst indicates the need. Water is essential to the life and function of every living cell.³ In starvation an animal can lose glycogen, fat and protein to 40 per cent. of body weight, but a loss of 10 per cent. of water content of the body causes serious disorders, and a loss of from 20 to 22 per cent. results in death. Water reaches every cell in the organism and through its properties furnishes the opportunity for chemical reactions, for changes in physical state and for energy transformations. The average daily intake of water when in repose is 2,200 to 2,500 c.c. Under like conditions the daily output in urine is 1,200 to 2,000 c.c., through the skin and respiration an average of 800 c.c. and by the feces 200 c.c. or less.

In intestinal obstruction we have not only a rapid loss of water but a failure to ingest a normal quantity. An item easily overlooked is the quantity of liquid taken as solid food which

*Read at the sixty-sixth annual meeting, Missouri State Medical Association, Joplin, May 8, 9, 10, 1923.

amounts to approximately 1,000 c.c. per day. An additional 300 c.c. may be added to this by oxidation of the food, making a total of 1,300 c.c. ordinarily derived from food.

The quantity of liquid excreted into the upper digestive tract in twenty-four hours varies from 7,500 to 10,000 c.c. This may not occur in such quantities in obstruction, but it is an indication of the possibility for a great loss of liquid by vomiting.

For maximum metabolic efficiency water must be supplied in a quantity sufficient to replace the water lost. The best regulator of this quantity is thirst. The heat regulating mechanism of the body depends upon the supply of water. Barbour⁴ says that "in ordinary febrile diseases the symptom of fever is due to a deficit of free-water."

How much water should be supplied the body in intestinal obstruction and how should it be given? Three avenues for water administration are available: the vein, beneath the skin and by rectum. Since it is difficult to determine the quantity of water lost, it is difficult to estimate accurately the quantity to be given. The quantity needed, of course, depends upon the stage and severity of the disease. As a working bases 3,000 c.c. of liquid may be accepted as a minimum quantity per twenty-four hours during the height of the disease. In some cases it may be wise to give much greater quantities, especially during the first twenty-four hours. It is best given as glucose or sodium chlorid solution as will be discussed later. Proctoclysis is a good method of administering water and glucose when it works, but so often it fails to work. In the very ill, when it is most needed, it is least trustworthy. The patient is frequently unable to retain liquid by rectum and expels part or all given. Efforts to supply water and food in this way often waste time for a patient when time is a very important consideration. When glucose is to be given by rectum it is probably best to give it in isotonic saline solution. Goldschmidt⁵ states that the presence of sodium chloride in glucose solutions favors the uptake of the glucose from the gut. Solutions of too great hypertonicity should not be used by rectum, because of the possibility of liquid flow from the body into the intestine due to osmotic pressure.

It is very wise to accept nature's indicator and assume that water is still needed by the organism as long as there is thirst. Crile's⁶ dictum to "water early; water continuously; water late," may be life saving.

FEEDING

To maintain strength and an energy balance food must be taken daily. To combat disease

with greatest efficiency the ingestion and assimilation of food is imperative.

In acute intestinal obstruction food cannot be taken by mouth and assimilated. It may be given by rectum, by hypodermoclysis or intravenously. The last method is probably the most practical. The food most suitable for administration is glucose. The strength of solution may vary with the choice of the physician, but because of the needed calories it is wise to give it in as concentrated solutions as the body can use without waste in the urine. A 25 per cent. solution properly given has proven very satisfactory.

Man can utilize .8 to .9 grams of glucose per kilo of body weight per hour for an indefinite period. This means that 56 to 63 grams may be given per hour. At this rate it would be possible to administer 1,300 to 1,500 grams per day by the intravenous method. If it were reasonable to give this large quantity it would mean a caloric value of 4,300 to 6,000 in twenty-four hours, a heat production much greater than necessary. The number of calories required for a 70 kilo man (154 lbs.) at rest (asleep) is 1,680. This is called by Macleod⁷ "the basal heat production, or the smallest energy output compatible with health."

Glucose may be given very satisfactorily and in a way that it may be utilized by injecting 250 c.c. of a 25 per cent. solution every four to six hours during the period of greatest illness. Each 250 c.c. should be given slowly over a period of one hour to permit proper utilization. If given more rapidly a portion may be lost in the urine. Two hundred and fifty c.c. of a 25 per cent. solution equal 62.5 grams. Four injections would amount to 250 grams or a caloric value of 1,000. If given every four hours the caloric value is raised to 1,500. These injections also furnish a portion of the liquid required to overcome dehydration.

Glucose may be given by proctoclysis in 5 per cent. solution or under the skin in 3 per cent. solution. If given by rectum, careful observation is required to determine the actual quantity utilized by the patient.

TOXEMIA

In intestinal obstruction there is produced a toxic substance which is very destructive to body tissue. It is probably a product of protein cleavage. Whipple⁸ and others are convinced that it is a proteose. Intestinal content taken from above the obstruction in the small bowel and injected into animals will produce symptoms similar to those of acute obstruction. This shows that the toxic substance is derived from the obstructed gut.

The work of several investigators^{9, 10} has shown that there is an increase in the non-protein nitrogen and urea nitrogen of the blood in intestinal obstruction. By producing obstruction of the duodenum and pylorus^{11, 12} of dogs, we have been able to confirm the above findings and in addition showed that there was a definite and rapid fall in chlorides of the blood and a rise in the CO₂ combining power of the blood plasma. Coincident with this there was an increase in the non-protein nitrogen and urea nitrogen and an almost total absence of chlorides in the urine. The increase in non-protein nitrogen and urea nitrogen in the blood indicates an abnormal destruction of tissue. The drop in chlorides suggests that the chlorides are being used by the body during the progress of the toxemia. We have interpreted the rise in CO₂ combining power as an incident associated with the use of the chlorides, setting free sodium which forms sodium bicarbonate and is read in the blood plasma as an increase in CO₂.

The average quantity of chloride in the blood of dogs is 462 mgms. per 100 c.c. In man the average is 500 mgms. per 100 c.c. of blood. In intestinal obstruction we have noted in experiments upon dogs a drop in chlorides as low as 110 mgms. Clinical cases have shown a fall to 320 mgms. This drop in chlorides suggested that the administration of sodium chloride might be a factor in combating the toxemia. Experiments to prove this have been made.¹³ Dogs with obstruction of the duodenum will die in an average of four days if untreated. Two of our dogs with such obstruction have been kept alive for twenty-one and twenty-eight days, respectively, with 500 c.c. of isotonic sodium chloride solution given daily by hypodermoclysis. These same dogs did not show the rise in non-protein nitrogen and urea nitrogen nor the drop in chlorides. It was assumed that the toxic process was held in check by the chlorides since dogs given the same quantity of pure water died as quickly as those untreated. Other dogs treated with 10 per cent. sodium chloride solution, beginning two days after obstruction and at a time when the blood changes above noted were well advanced, showed a marked drop in non-protein nitrogen and urea nitrogen and a rapid rise in the chlorides of the blood. Thus it is shown that the protein destruction can be prevented by the early administration of sodium chloride and checked after the process has begun.

These observations indicate to us that sodium chloride should be used as a means of neutralizing or combating the toxemia of acute intestinal obstruction. How should it be used and in what quantity? It may be given in the vein, under the skin or by rectum. We have used hypodermoclysis with most satisfaction.

An estimate of chlorides in the blood and urine is the most rational guide to the quantity of chlorides necessary. Any drop of chlorides in the blood is an indication for its use. In the absence of renal insufficiency, its absence or almost complete absence in the urine is an indication for its use. In intestinal obstruction with well developed symptoms we have estimated that an initial quantity for the first twelve hours should equal 1 gram of sodium chloride per kilo of body weight, or 70 grams for an individual weighing 154 pounds. This may be given in a 3 per cent. solution under the skin. It should be given slowly by the gravity method to avoid pressure and sloughing. One of our clinical cases with a low, small gut obstruction of five days' duration, absorbed 90 grams of sodium chloride in thirty-six hours with the appearance of but .8 grams in the urine.¹⁴ From this case it seems quite evident that the body utilizes sodium chloride in considerable quantities in intestinal obstruction.

The question of administering alkalies is important in acute obstructions. In both man and dogs we have usually found an increase in the CO₂ combining power of the plasma, indicating an excess of sodium bicarbonate in the blood or an alkalosis. If this condition exists it is obvious that sodium bicarbonate is not indicated. In low obstructions the toxemia may be slow in developing and an acidosis may be present, due chiefly to dehydration and starvation. In such an instance, when the blood shows CO₂ below normal, sodium bicarbonate is indicated.

DISCUSSION

We believe it quite necessary that all cases of acute intestinal obstruction be treated from the standpoint of the four factors discussed above. It is sometimes difficult to decide when to operate and how to operate. The condition of the patient can be the only guide. If the patient is very toxic, liquid, salt and glucose should be given before subjecting him to operation. In other words, the treatment of the dehydration, starvation and toxemia should begin first. We do not mean by this that the operation should be unduly delayed. After water, salt and food, the patient will usually show improvement and operation can then be done with greater safety.

There are few conditions in surgery that require more constant vigilance and continuous treatment. In every case some person skilled in giving intravenous medication and hypodermoclysis should be constantly in attendance. If proctoclysis is used it should be carefully watched and the quantity of liquid actually retained carefully noted. Many very ill patients have trouble retaining liquid by rectum

and this method must not be too much depended upon.

A liquid chart should be carefully kept to show accurately the intake and output per twenty-four hours. Unless this is done guesses and estimations are apt to be wrong and misleading.

A 3 per cent. solution of sodium chloride may be given under the skin without fear of sloughing if given slowly and without much pressure. If this proves distressing to the patient, Bartlett's method of adding novocain in dilute solution may be useful. According to Bartlett,¹⁵ glucose may also be given under the skin in 2 to 5 per cent. solutions. A 3 per cent. solution of glucose is approximately isotonic with the blood. We believe glucose by the vein in 25 per cent. solution to be preferable. The method of giving the hypertonic solution of glucose is emphasized. It should be given with a small needle at the rate of 250 c.c. per hour and no faster. The body cannot utilize the glucose when given more rapidly.

CONCLUSIONS

In conclusion we wish to emphasize the following points:

1. In treating acute intestinal obstruction, the mechanical obstruction, dehydration, starvation and toxemia should be emphasized as the four phases of the pathologic process.

2. The mechanical obstruction should be relieved as early as possible, but the other three phases should be carefully considered in conjunction with its relief.

3. Dehydration should be overcome by the administration of 3,000 c.c. or more of liquid per twenty-four hours during the acute illness.

4. The starvation should be met by the administration of sufficient glucose to produce a caloric value equal to or in excess of 1,680 per day, which is the minimum for an adult of 70 kilos at rest. This may be given in the vein, under the skin and by rectum.

5. The toxemia, which is the most important factor of the disease, may be combated by giving sodium chloride in sufficient quantity to maintain the chlorides of the blood and urine at a normal level. This may be done by the use of a 3 per cent. solution under the skin.

University of Kansas Medical School,
Kansas City, Kansas.

REFERENCES

1. McKinnon, A. D.: Jejunostomy. A Treatment of Acute Ileus and a Preventive of Postoperative Ileus. *Jour. Amer. Med. Assoc.*, 77, 273, July 23, 1921.
2. Hartwell, F. A. and Houget, J. P.: Experimental Intestinal Obstruction in Dogs with Especial Reference to the Cause of Death and the Treatment by Large Amounts of Normal Saline Solution. *Jour. Amer. Med. Assoc.*, 59, 82, 1912.
3. Rowntree, L. G.: The Water Balance of the Body. *Physiological Reviews*, 2, 116, January, 1922.
4. Barbour, H. G.: The Heat Regulating Mechanism of the Body. *Physiological Reviews*, 1, 295, April, 1921.

5. Goldschmidt, S.: On the Mechanism of Absorption from the Intestine. *Physiological Reviews*, 1, 421, July, 1921.
6. Crile, G. W.: The Value of Water. *Surg., Gyn. and Obst.*, 34, 277, February, 1922.
7. Macleod, J. J. R.: Physiology and Biochemistry in Modern Medicine. 1919.
8. Whipple, G. H., Rodenbaugh, F. H., and Kilgore, A. R.: Intestinal Obstruction. V Proteose Intoxication. *Jour. Exp. Med.*, 23, 123, January, 1916.
9. Tilestone, W., and Comfort, C. W., Jr.: The Total Non-Protein Nitrogen and the Urea of the Blood in Health and in Disease as Estimated by Folin's Method. *Arch. Int. Med.*, 14, 620, November, 1914.
10. Cooke, J. V., Rodenbaugh, F. H., and Whipple, G. H.: Intestinal Obstruction. VI A Study of Non-Coagulable Nitrogen of the Blood. *Jour. Exp. Med.*, 23, 717, June, 1916.
11. Haden, R. L., and Orr, T. G.: Chemical Changes in the Blood of the Dog After Intestinal Obstruction. *Jour. Exp. Med.*, 37, 365, March 1, 1923.
12. Haden, R. L., and Orr, T. G.: Chemical Changes in the Blood of the Dog After Pyloric Obstruction. *Jour. Exp. Med.*, 37, 377, March 1, 1923.
13. Haden, R. L., and Orr, T. G.: The Effect of Sodium Chloride on the Blood Chemical Changes of the Dog After Intestinal Obstruction. *Jour. Exp. Med.*, July 1, 1923, 38, 55.
14. Haden, R. L., and Orr, T. G.: Chemical Changes in the Blood of Man After Acute Intestinal Obstruction. An Indication for Treatment with Sodium Chloride. *Surg., Gyn. and Obst.* (In press).
15. Bartlett, W.: Painless Hypodermoclysis. *Ann. Surg.*, 73, 161, February, 1921.

DISCUSSION

DR. WARREN R. RAINES, St. Louis: You referred to the jejunum as the point of election in enterostomy?

DR. ORR: Yes.

DR. RAINES: I have never been able to understand why that should be the point of election. I would like to have your reason.

DR. ORR: There is a tendency for the fluid to get back in the vomiting process, and if you open it you get better drainage. I think it depends on the state of paralysis of the gut. If there is a tendency for the patient to vomit constantly, it stands to reason you would get better drainage there.

DR. W. T. ELAM, St. Joseph: There is a new idea of opening up the thoracic duct at the point of its entrance into the subclavian. Have you had experience with that?

DR. ORR: No.

THE VALUE OF ROENTGEN RAY MEASUREMENTS IN CARDIAC EXAMINATION*

DAVID S. DANN, M.D.

KANSAS CITY, MO.

Roentgen ray measurements of the heart and great vessels have been developed to the point where they have assumed an important place in careful cardiac examinations. In late years, the variety of X-ray measurements of the heart has greatly increased. A number of these from the standpoint of physical diagnosis are of doubtful value. This has had a tendency not only to cloud the more important measurements, but to bring them into disrepute as well.

It is my purpose to discuss the more important methods and consider their relative values. I will not weary you by giving more than a brief sketchy outline of this technical but valuable aid to cardiac examination. I shall also take the liberty of presenting four illustrative types of cases.

*Read at the Sixty-Sixth Annual Meeting, Missouri State Medical Association, Joplin, May 8, 9, 10, 1923.

METHODS AND TECHNIQUE

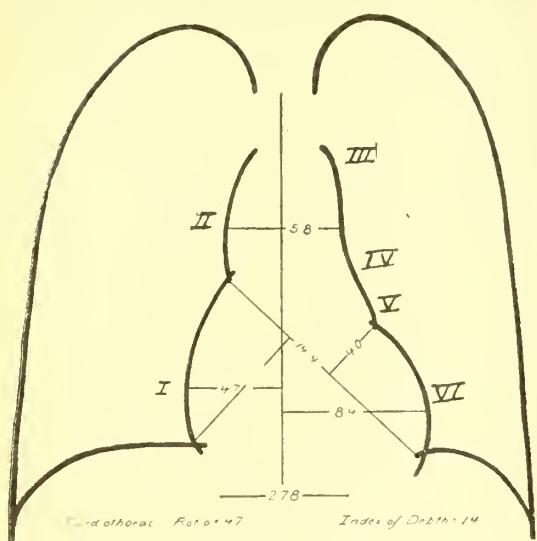


Fig. 1. Normal subject. Dr. W. A.; aged 27; weight 145 pounds; height 69 inches.

Before attempting to interpret the findings, it is absolutely essential to have a thorough knowledge of the anatomy of the heart and great vessels, and of the normal radiographic shadow.

Figure 1 is a tracing made from a seven-foot heart plate of a normal individual. The cardiac and supracardiac shadows are composed of two arcs on the right and four arcs on the left. I, on the right is the right auricle; II, on the right is the ascending aorta; occasionally the beginning of this arc is formed by the superior vena cava; III, on the left is the aortic arch; IV, on the left is the pulmonary artery; V, on the left is the left auricle; VI, on the left is the left ventricle.

There are two methods of obtaining the outline of the transverse shadow of the heart and great vessels for measurement; the orthodiagnostic tracing and the seven-foot teleroentgenogram.

In the orthodiagnostic method, the tube is situated 60 centimeters behind the patient who is standing in front of a fluoroscopic screen. Then by narrowing down the diaphragm in front of the tube, perpendicular rays are brought tangent to a number of points on the cardiac and supra-cardiac shadows. The outline of the latter is obtained by joining these points.

In the teleroentgenographic method, a roentgenogram is taken with the tube situated seven feet behind the patient, centering about an inch above the inferior angle of the scapula. The reason for taking the plate at seven-foot distance will become apparent if we study the following diagram.

It will be noted that when the tube is situated at X, it will project the image of C or the heart at LM; when at Y, it will project the heart at NO; and when at Z, at PQ. In other words, the further the tube is removed behind C or the heart, the more parallel the rays become and thus a more accurate projection of the size of the heart is obtained. It has been found that at seven feet the rays are almost parallel and will thus project an image of the heart with the least possible distortion.

There are two types of measurements that can be obtained from this outline, namely: linear and area.

Linear measurements are obtained as follows: a line is drawn along the center of the spinal column, then perpendiculars are erected to this line from the farthest point to the left and the farthest point to the right. The sum of these two equals the total transverse diameter. The junction of the base of the supra-cardiac shadow with the right auricle is connected with the apex and perpendiculars are erected to this from the junction of the left auricle and ventricle, and right auricle and diaphragm. A line is drawn across the widest diameter of the supra-cardiac shadow and the widest internal diameter of the chest.

Normally, the total transverse diameter of the heart is equal to or less than one-half of the widest internal diameter of the chest. In other words, normally, the cardio-thoracic ratio equals 0.5 or less.

Area measurements are obtained by the use of a planimeter applied to the auricular and ventricular outlines.

Bordet and Vaquez¹ sought to overcome the limitations of transverse measurements. In 1918, they described two methods for obtaining information concerning the antero-posterior diameter or depth of the left ventricle.

Figure 2 is a tracing made from a cross section of the trunk in the apical region of the heart, about the level of the tenth dorsal vertebra. Imagine the patient standing, facing

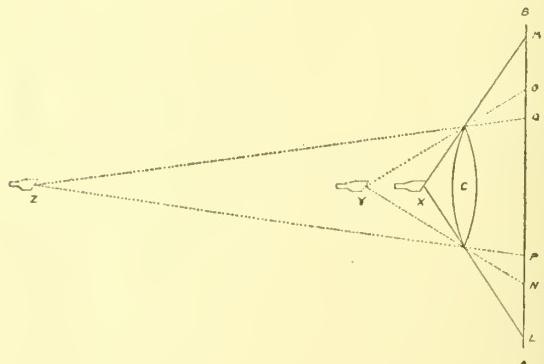


Fig. 2. AB=photographic plate; C=heart; X, Y and Z=various distances of tube behind the heart; LM, NO, and PQ=projection of C.

the fluoroscopic screen, as this section illustrates, with the tube situated 60 centimeters in back of the screen. Then by utilizing the principle involved in the location of foreign bodies, the point B or the farthest point to the left in the region of the apex is located on

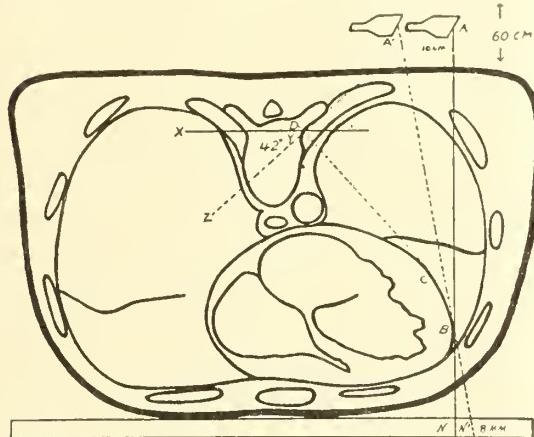


Fig. 3. Cross-section of the trunk in the apical region of the heart, about the level of the tenth dorsal vertebra. Section was drawn from the anatomic collection at the Harvard Medical School. It illustrates the method for finding the index of the depth and angle of disappearance of the farthest point to the left in the region of the apex. AA', positions of the tube; NN', projections of the normal ray and oblique ray; 8 mm. the index of depth. XYZ, angle at which the point C disappears behind the spine. This occurs when the section is rotated until the line DC is perpendicular to a base line.

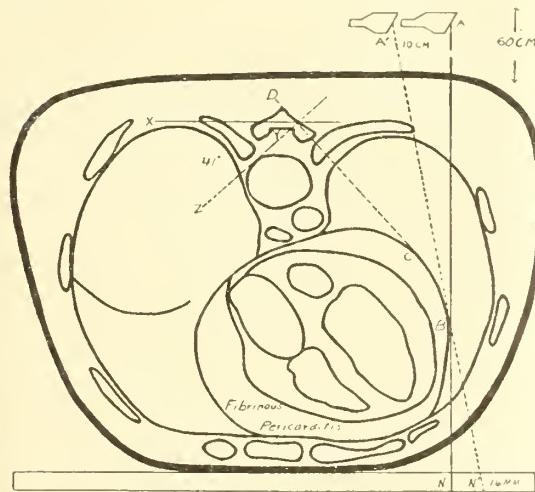


Fig. 4. Same method as in Fig. 1 in case of enlargement of the left ventricle.

the screen at N and NN'. The distance NN' is called the index of depth, which on this section happens to be 8 millimeters. Figure 4 is a similar cross section of a case of fibrinous pericarditis. Note the increase in the index measurement to 16 millimeters, where the left ventricle is increased in depth. The upper normal limit of the index measurement is about 16 millimeters.

Now imagine this cross section turned around so that the patient is standing with his

back to the screen. In this position the apex of the heart projects to the left of the spine. The patient is then rotated with the right shoulder acting as a pivot until the apex of the heart disappears behind the shadow of the spine. The angle of obliquity formed by the back of the patient with the screen is then measured with a goniometer as illustrated in the diagram, Figure 5. This is termed the "angle of disappearance of the apex." It is maintained that when the angle is greater than 35 degrees, the left ventricle is enlarged.

DISCUSSION

Before attempting to discuss the relative merits of these various X-ray methods of estimating cardiac size, it is essential to decide whether any cardiac measurements are of practical value.

The value of any method of examination

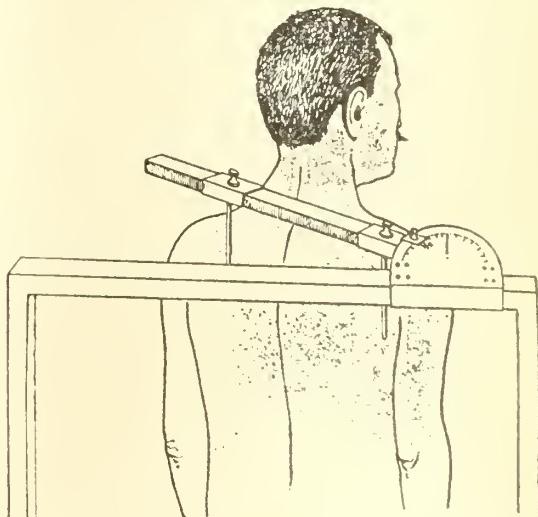


Fig. 5. Goniometer of Vaquez and Bordet. (From Bordet and Vaquez.)

may be estimated, I think, by the test of time. Percussion has been used in physical diagnosis since its discovery by Auenbrueger about the middle of the eighteenth century. As a method of determining the heart outline, percussion has been in use for a great many years. If it had not been of some value in estimating cardiac size, it would have been discarded a long time ago. The physical basis of X-ray measurements is far more accurate than that of percussion. Moritz, Groedel and Dietlen of Germany, Bordet and Vaquez of France, Shattuck, Holmes and Bardeen of this country, and many others who have done this work for a considerable time, have demonstrated that the method of examination of the heart by the X-ray is distinctly more accurate as to size than any method of percussion. In certain selected cases it is the only method

which will enable one to determine cardiac size, taking for example the gross errors experienced in percussing the emphysematous chest. It is obvious then that if percussion is of value, X-ray is of more value.

Having decided that measurements of the heart are of importance in clinical medicine and that the X-ray is the most accurate means of obtaining them, let us turn our attention to a discussion of the method to be chosen.

For obtaining the outline of the cardiac shadow, the seven-foot teleoroentgenogram has many advantages over the orthodiagnostic tracing. The orthodiagnostic tracing requires special apparatus and considerable skill; at the same time there are many personal sources of error. The teleoroentgenogram, when combined with the fluoroscopic observations, as described by Holmes and Ruggles,² gives all the data that can be obtained from the orthodiagnostic. It does not require special apparatus, is simpler, less time consuming, and reduces the source of personal error to a minimum.

Having obtained the outline of the heart, the question is to decide whether linear or area measurements should be used. From a practical viewpoint linear measurements are far superior to area measurements. To obtain area measurements it is necessary to locate the apex and the base of the heart, two of the most difficult points to determine even in the hands of experts. Linear transverse measurements, essentially, require the determination of the farthest point to the left and the farthest point to the right, both of which can be determined with great accuracy and ease. Moreover, these transverse measurements of the heart and supra-cardiac shadow (which of all X-ray measurements, I consider the most important) are of great value in checking up percussion. It is no longer necessary to wait for the autopsy table to determine accuracy in percussion.

Expressed mathematically:
the transverse

$$\text{cardio-thoracic ratio} = \frac{\text{total transverse diameter of heart}}{\text{widest internal transverse diameter of chest}}$$

For example in Figure 1, the cardio-thoracic

$$\text{ratio} = \frac{4.7 + 8.4}{27.8} = .47.$$

To repeat, normally, this ratio does not exceed 0.5. There are some observations which seem to indicate that in the female sex, it may reach 0.52 or 0.53. The cardio-thoracic ratio is a quick, simple, reliable indication of the transverse diameter of the heart.

Changes in size of the heart in the course of disease processes, as a result of therapy or following prolonged physical exertion, can be carefully studied with linear measurements.

When I read of the index and angle of Bordet-Vaquez, as a means of obtaining information concerning the depth of the left ventricle, I was impressed with the importance of such a procedure, if proven true in cardiac examination. I, therefore, made a critical study of these measurements. These obser-

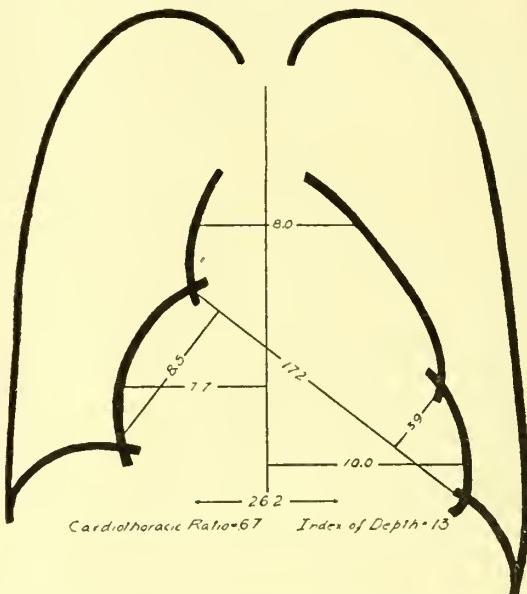


Fig. 6. Rheumatic heart disease with mitral stenosis, predominant valvular lesion; increased cardiothoracic ratio and index. Roentgen ray 82669; House, West. Med. No. 248317. Weight, 180 pounds; height, 62 inches. A white woman, 35 years of age, sitting propped up in bed with evident moderate respiratory embarrassment. Had scarlet fever at 8 years of age, with "rheumatism" the following year and frequent tonsillitis. For the past two years has had dyspnea, palpitation and pains all over the body on exertion, which have been increasing in severity. Has an unproductive cough which keeps her awake nights. Examination shows a loud systolic apical murmur, obscuring the first sound and transmitted to the axilla; at the apex is also heard a short mid-diastolic murmur. Sounds are absolutely irregular, slightly rapid and of forcible quality. Blood pressure, 100/70. Scattered musical, sticky rales over both lungs anteriorly and posteriorly. The liver edge is felt 4 cm. below the right costal margin. Scars on the right shin. Blood Wassermann: Strongly positive. Electrocardiograph: Auricular fibrillation (coarse); rate, 70; diphasic T. Roentgen ray shows markedly prominence of the right and left auricular arcs and pulmonary arc. The left ventricular arc is flattened, apex pointed and displaced downward. In general, heart is "acorn shaped." In the right antero-oblique position, there is marked prominence in the region of the auricles. Cardio-thoracic ratio=.67, index of depth=13 mm. Findings suggest marked enlargement of the heart, confined to the auricles and right ventricle. The chest plate in addition shows moderate prominence and thickening of the larger lung markings throughout both lung fields. Diagnosis: Rheumatic heart disease, with mitral stenosis, auricular fibrillation and failure of the congestive type.

vations³ are recorded in detail in the Archives of Internal Medicine for February, 1923. They tend to show that, of the two measurements, the index of depth is the more reliable. Moreover, the index of depth does not appear to be a true indication of the antero-posterior diameter of the heart. It seems to be dependent not upon the size of the left ventricle but upon

its shape. From a scientific standpoint the index of depth may be a very reliable additional method for studying the progress of hypertrophy of the left ventricle in an individual case.

The following cases from the Massachusetts General Hospital, including the normal, Figure 1, illustrate four distinct groups.

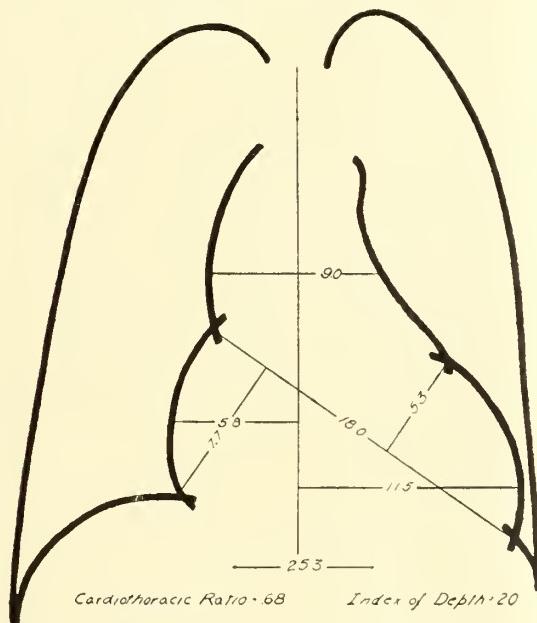


Fig. 7. Syphilitic heart disease with aortic regurgitation; increased cardio-thoracic ratio and index. Roentgen ray 82949; House, East Med. No. 248495. Weight, 126 pounds; height, 66 inches. A rather thin, pale-looking white man, club valet, aged 38, without any history of previous cardiac disturbances. Comes to the hospital for relief of palpitation (difficulty felt in climbing stairs), and insomnia since six months ago, which have become exaggerated in the last two weeks. Examination shows the right pupil greater than the left, both regular in outline, but react very sluggishly to light, and well in accommodation. Loud systolic and a very short diastolic murmur at the apex, loud, rough systolic and short diastolic at the base. Blood pressure 140/20. Blood Wassermann: Strongly positive at two examinations. The Roentgen ray shows a marked increase in the shadow of the heart to the left with moderate convexity of the left ventricular arc, and lowered, rounded apex, without prominence of the auricular arcs. In general heart has the "lying egg-shaped" appearance. The supraventricular shadow is moderately increased in the antero-posterior and right antero-oblique positions. In the latter position, there is no prominence in the region of the auricles. Cardiothoracic ratio = 0.68, index of depth = 20 mm. Findings suggest moderate dilatation of the aorta and enlargement of the heart in the region of the left ventricle. Diagnosis: Syphilitic heart disease with aortitis, moderate dilatation of the ascending aorta, aortic regurgitation and left ventricular preponderance.

CONCLUSIONS

- Determination of the size of the heart and great vessels is of great value in clinical medicine.
- The roentgenologic method is the most accurate means of obtaining such information.
- The seven heart plate or teleoroentgenogram is the most practical and useful method so far devised for obtaining the outline of the heart and great vessels for measurement.
- By means of the roentgen-ray examina-

tion valuable additional information concerning the type of cardiac disease can be obtained.

BIBLIOGRAPHY

- Vaquez, H., and Bordet, E.: The Heart and the Aorta; Translated by Honeij, J. A., and Macy, J., Ed. 2, New Haven, Yale University Press, 1920. Pp. 38-56.
- Holmes, G. W., and Ruggles, H. W.: Roentgen Interpretation, Philadelphia and New York, Lea and Febiger, 1921. P. 124.
- Dann, David S.: Some Observations on the Value of the Index and Angle of Bordet-Vaquez in Cardiac Examination, Arch. Int. Med. 31: 269-288, February, 1923.

327 Lathrop Bldg.

DISCUSSION

DR. E. H. SKINNER, Kansas City: This is a most fascinating subject and I only wish all of you were as interested in this as I am. It may seem from the presentation that this method would be rather academic. My interest in this developed during my first trip to Europe in 1909-1911. I was working at Vienna with Schwartz, who was the radiologist upon Van Noorden's service.

Of course, as you have done all your medical life, and as our forefathers did before us, we percussed out the heart with the fingers. We listened to the heart with our ears. That is just exactly the same thing we have been doing in making an analysis of the tuberculous chest, up to the time the X-ray came in. Just as Dr. Snider showed how you visualize tuberculosis within the chest, which before you only had been able to detect by percussion and osculta-

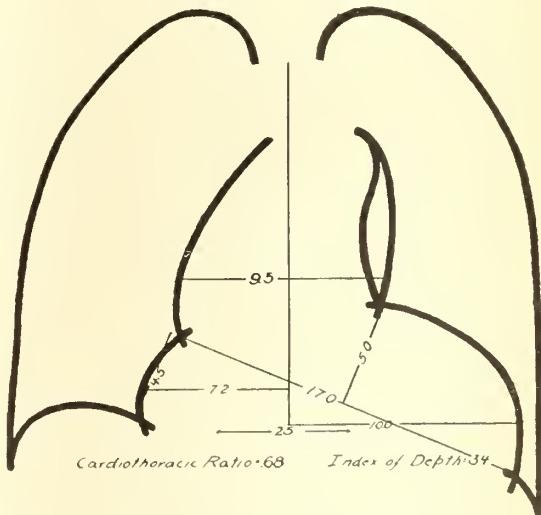


Fig. 8. Hypertensive heart disease, increased cardiothoracic ratio and index. Roentgen ray 78883; House, East Med. No. 245881. Weight 187 pounds; height, 70 inches. A white, well developed woman, 55 years of age, who for a number of years has suffered from frequent headaches, transient attacks of dizziness, nocturia, dyspnea on exertion, and occasional attacks of palpitation with stabbing precordial pain. Examination shows heart sounds of good quality, loud, A2, first sound short and snappy at the apex. Blood pressure 235/140. Slight edema of the ankles. Fundi show albuminuric retinitis. Urine shows a trace of albumin, specific gravity 1.014, occasional hyaline cast. Blood: nonprotein nitrogen 45.6 mg. per 100 c.c. The Roentgen ray shows marked increase in the heart shadow to the left, exaggeration of the left ventricular convexity, and apex blunted and elevated. No prominence of the auricular arcs. In general, heart is "goose shaped." The supraventricular shadow measurement is increased in width in the antero-posterior and right antero-oblique positions. Aortic shadow tortuous with a prominent knob, but diaphragmatic shadows are high. In the oblique position, there is no prominence in the region of the auricles. Cardiothoracic ratio = 0.68, index of depth = 34 mm. Findings suggest marked enlargement of the left ventricle. Diagnosis: Hypertensive heart disease, with chronic nephritis, arteriosclerosis of the aorta, and left ventricular preponderance.

tion, so has Dr. Dann shown how you can visualize the actual outline of the heart, which will be far more exact than percussion.

Do not misunderstand me. Do not think that I am attempting to say that the X-ray is more valuable than percussion or auscultation; because if I were an internist I would tell you immediately that percussion and auscultation are available without any apparatus. And that is what the majority of the profession must depend upon in the analysis of hearts. But if you want to lend more exactness to the diagnostic work, Dr. Dann has shown you how you can do this by X-ray examination and measurements.

This is a most fascinating subject. I am back from my first work in Europe. I worked with Levy-Dorn, who had devised an orthodiagnostic fluoroscope which consisted of a small round fluoroscopic screen with a hole in the center, which in turn was centered with the tube behind the patient and moved synchronously with the patient. Through the hole in the fluoroscopic screen the outline of the heart was stenciled on the chest wall or upon a chart. It was not a matter of percussion or relative value of sounds, but the actual outline of that heart. The teleoroentgenographic method (teleo meaning distance) described by Dr. Dann is more exact. Why? Because you have the means by which you can sketch the outline of the heart and make your measurements at your leisure and study them without having to carry only a fascinating impression of the fluoroscopic examination.

This is most alluring work, and I hope Dr. Dann will be able to interest more clinicians in this by his own enthusiasm for it.

DR. HENRY SCHNEIDERMAN, Kansas City: Dr. Skinner said what I had intended to say. I shall therefore bring out a few practical examples of the value of X-ray measurements. The tendency today is to diagnose disease in its incipiency. I do not know of any more accurate, earlier method of diagnosing heart failure than the determination of the exact size of the heart. In arteriosclerosis as well as chronic nephritis, long before any symptoms or physical signs of heart failure appear, the cardiac outline will show enlargement. This incipient enlargement can be made out only by X-ray measurements. I have two cases under observation that emphasize the great importance of X-ray measurements of the heart.

The first patient is a man 35 years old who has had angina pectoris pains for two years in spite of negative physical and blood findings. The diagnosis in this man was cardiac neurosis. Careful measurements made by Dr. Dann revealed a cardio-thoracic ratio of .61 and a ventriculoauricular ratio of .56. These measurements mean distinct enlargement of the heart with left ventricular preponderance.

The other case is that of a man of 50 who has been having anginoid pains under the sternum when exercising only. This man's physical examination was also negative, yet X-ray measurements revealed enlargement of the heart, especially of the left ventricle. These men would have gone around with a diagnosis of cardiac neurosis, were it not for Dr. Dann's careful measurements.

DR. SCOTT P. CHILD, Kansas City: I am much impressed in both the papers by Dr. Snider and Dr. Dann, of the value of such contributions to the profession in general in accuracy of diagnosis. We have not listened to a dissertation upon the diagnosis of tuberculosis nor upon the diagnosis of heart disease; but have had our attention called to instruments of precision which are assisting us as members of the medical profession in our general and special work so that we may be more accurate in performing the work we are doing for society at large.

The X-ray is like a stethoscope and a properly

directed knife. It is an instrument to assist in precision of diagnosis. One goes to the X-ray laboratory in connection with his work, whether upon the lungs or heart, for assistance in interpreting physical signs. That is today the lesson which we should learn: that the X-ray is an instrument for assisting in precision of interpretation of the conditions going on within the chest walls.

One should not go to the roentgenologist for a diagnosis any more than he goes to the pathological laboratory to have the pathologist tell him whether it is typhoid or tuberculosis, but whether the elements present justify the clinical observation. The work now going on in interpreting the absolute outline of the heart, is assisting very materially the physical examinations on which, in the past, one has had to base so largely his opinions and arrive at a diagnosis.

DR. DAVID S. DANN, Kansas City: I wish to thank the Association for giving me the opportunity of discussing this subject, and thank the gentlemen who have so fully and interestingly discussed this paper.

Undoubtedly, all of you have shared the same enthusiasm that I have in the past, of percussing the chest and then, when the patient came to the autopsy table of trying to verify the accuracy of the percussion. At the present time it is no longer necessary to wait for the autopsy table before checking up percussion.

Then again the possibilities of an accurate determination of cardiac measurements have been mentioned. To sum up: changes in cardiac size during the course of diseased processes as a result of therapeutic procedure or following prolonged physical exertion, can be carefully studied by this means. As a matter of fact, Dr. Cohn of the Rockefeller Institute in all his studies at the present time depends to a great extent upon X-ray method to determine changes following physical exertion or therapeutic procedures. Dr. White tried to determine whether there was reduction in the size of the auricles following quinidine therapy solely by means of the X-ray method. Wilson, of Ann Arbor, in the same manner depends to a great extent upon the X-ray examination in his studies of therapeutics procedures.

LIMITED PRACTICE AND ITS CONTROL: WHAT OF THE FUTURE??*

HERMAN E. PEARSE, M.D.

KANSAS CITY, MO.

It is difficult to step from a consideration of papers such as we have been receiving to a consideration of the sordid topics of how we may get the benefits of that instruction into the homes and the lives of the people of this state.

"Wisdom is justified of her children. But a fool in his folly, by his loudness of speech, may undo the work of many wise men"—for a time, at least.

I am asking you to listen awhile while we go over one or two of the fundamental facts that have been developed in the last year, before I read you the paper I have prepared.

I was impressed by the statement of Dr. Dann that it was no longer necessary for him

*Read at the sixty-sixth annual meeting, Missouri State Medical Association, Joplin, May 8, 9, 10, 1923.

to wait for the post-mortem table to verify the knowledge that he had obtained by the physical examination. Let us by timely consideration not wait for the death of many of our projects for general public improvement until they have been killed by the hordes of quackery and pretense that are flooding the State of Missouri at the present time and that are threatened in the near future.

I take great pleasure in listening to these papers and in taking part in their discussion. I take equal pleasure in turning aside from the work to which we have devoted our lives—the improvement of the physical condition of the human race—to talk with you about the methods by which we can perpetuate our studies and save to the people of the state the benefits that will accrue to them.

Always in the past we have done what we have done this morning. We set apart two hours' time—a part of it for the consideration of medical legislation affecting the health of the people of the State of Missouri. We have used one and a half hours of that two hours in the studies we love so well, that will be utterly useless unless we can get them into the lives of our people and into the work of organizations of the state and country through proper public health legislation. I will do what I can in the half hour left to us.

The work of this Committee began last June. When the constitutional convention met, we were startled by unexpected developments. We found before the Committee on Bill of Rights which was to be written into the new constitution of the state, a proposal that nothing in the acts of the general assembly should make it possible for any man or woman or child in Missouri to be given any kind of treatment against his will—as a fundamental provision in the constitution. That would have done away with laws regarding vaccination and concerning quarantine.

Following that was the proposal before the same Committee that nothing in the acts of the general assembly should ever make it impossible for any person to choose his own practitioner, regardless of his license or education or anything else, if he wanted him to treat him. That would have done away with police regulations of the practice of preventive medicine in this state.

Before the Public Health Committee appeared the same types of resolutions providing that nothing in the acts of the general assembly should ever interfere with the practice of the healing art, regardless of preparation or efficiency, as such treatment by any person was an inherent right.

Opposing that, was the proposal made by the public health people of Missouri that the general assembly should enact laws to safe-

guard the welfare and public health of the people of Missouri. This proposal No. 192 was fought by the osteopathic profession, by the chiropractic profession, by Christian Science, by the Unity people, by the anti-vaccinationists, and all the hordes we have had opposing us in every effort for the improvement of the public health code of laws of the State of Missouri.

Everyone whose particular plans were interfered with by the efforts of the state to protect its people were there banded together to pass this resolution. After many visits to Jefferson City at much expense, the constitutional convention passed Proposal No. 192 and consigned the remainder of these proposals to the waste discard.

Should this new constitution be adopted, it will be possible for the legislature of Missouri to continue in the future to safeguard the health and welfare of the people of Missouri, and it would not have been so had not the organized efforts of this Association, through its officers and committee, attended to that matter.

I wish to call attention to the fact the constitutional convention has not yet adjourned. At any time during this summer that action may be rescinded, and such proposals as I have mentioned may yet be placed as constitutional restrictions in this state, and we must watch the proceedings of that institution for the entire summer.

“Wisdom is justified of her children. But a fool in his folly, by his loudness of speech, may undo the work of many wise men.”

We knew by the early part of November after the election had taken place, by the flood of propaganda sent all over the state to every newly elected representative and senator, that we would have to oppose in the assembly the same type of legislation that had been offered as constitutional restrictions and amendments before the constitutional convention. Our treasury was depleted by the long fight on the referendum of the Medical College Education bill. We did the best we could. We found many people in the capitol openly supplied with lobbyists, with money, with offices equipped with stenographers, desks and statistical references of all kinds that would enable them to reach the influences that would bring action in the Senate and the House; and we had only this organization, busy as always with its own business, studying always how it might advance the interests of humanity, not how it might exploit them, and we did the best we could.

It seems to me it is necessary as we look at this matter, to look at it from that viewpoint. It is our aim in life to devote ourselves to the

building up of the practice of medicine. It must not be that alone. There must be attention occasionally to the opportunities for bringing this matter to the people, and we must remember that in Missouri as in few other states, there are elements constantly working to batter down our regulation of public health matters and to leave the state wide open to the exploitation of any cult or limited practice scheme that offers profit to those who teach it and who practise it.

There was introduced into the Fifty-Second General Assembly of Missouri a bill to regulate the practice of medicine and surgery and to provide for the regulation of practice of the "limited branches" of medicine. It is the purpose of this paper to discuss the question of "Limited Practice" and its control and to consider "What of the Future?"

This bill was called forth by the presence in the state of some two thousand practitioners of various sorts. Osteopaths and Chiropractors in the state of Missouri, both practice under the affirmation that the practice of their particular method is not the practice of medicine as set forth and defined under our Medical Practice Act, Article I, Chapter 65, of the Revised Statutes of Missouri, 1919. Although they have obtained in many other states laws setting forth that their practice is not the practice of medicine, and although in Missouri the osteopathic law now upon the statute states that the practice of osteopathy is not the practice of medicine, yet it is common knowledge that the osteopaths are practicing medicine and surgery and any argument to the contrary is the merest juggling of words and twisting of definitions.

The opening article of the Osteopathic Law is as follows:

OSTEOPATHY DECLARED NOT TO BE THE PRACTICE
OF MEDICINE

"The system, method or science of treating diseases of the human body, commonly known as osteopathy, and as taught and practised by the American School of Osteopathy at Kirksville, is hereby declared not to be the practice of medicine and surgery within the meaning of Article I, Chapter 65, and not subject to the provisions of said Article."

A glance at the laws of the different states shows plainly that the practice of medicine and surgery means offering relief to ailing people, or pointing out to them how they may obtain relief. This the osteopath does. He is by all common sense definition of the term, actually practising medicine. He goes to the bedside of children with colds, measles, influenza and scarlet fever. He treats children with scabies and other eruptive skin diseases. He attends con-

finements. He doctors sore throats. He does the work of the family physician. When our bill was before the committee of the House this spring, one practitioner indignantly asserted that if the osteopaths were to be denied the right to treat the contagious and infectious diseases of every-day practice, which our bill denied them, it would cut off the larger part of their practice. Yet their law denies that the practice of osteopathy is the practice of medicine.

Theoretically the osteopath is supposed to use only his method of manipulation, but really today in Missouri, at least, the osteopath is doing a low-grade practice of medicine among the people of the state. I use the term "low-grade" because the real pathology of disease as known to the entire scientific world of all nations is denied by the osteopathic schools, which teach that the disorders of the body arise, not from infection or endocrin disturbance of function, but from displacement of structures and mechanical obstruction of the passage of the fluids of the body in its functioning. Hence, his causative pathology being faulty, his conceptions and his viewpoints are faulty, and his procedure is without a sure foundation. Those osteopaths who have a natural aptitude for treating sick people, those who have tact in their manner, and sympathy and judgment in their character, become endeared to their patients and really practise medicine with some success. They succeed, as far as they do, not by means of their osteopathic procedure, but actually in spite of it, using the factors of rest, heat, diet, good nursing, regulation of habits, as any physician does, and are, to that extent practising medicine. They should therefore understand and be examined in the ground work of practice, which is pathology—real pathology, upon which they base their daily practice of the care of the sick, and should obtain the degree of M.D. from a reputable Medical School as a requirement for practice. And if they are, as they claim, a special branch of treatment, their practice should certainly be confined to their special methods. An osteopath should not assume the work in practice of an M.D. If he does he should be licensed. The leaders of the osteopaths stated indignantly before the legislature that they did not desire their students to use our "dirty drugs" with which they declared we "poisoned our patients." Yet we find this anomalous situation existing: they have asked and received the right under the United States Government to use opium and narcotics, based upon Treasury Decision No. 2232, issued July 23, 1915, as follows:

TREASURY DECISION No. 2232.

TREASURY DEPARTMENT.

Office of Commissioner of Internal Revenue.

Washington, D. C., July 23, 1915.

That portion of the paragraph headed "Registration, who eligible for," of T. D. 3172, which reads, "An osteopath, therefore, or other person heretofore administering these drugs, if not classed as a physician in the state in which he resides, would not be permitted to register under this law" is hereby revoked.

Osteopaths, therefore, should be permitted to register and pay special tax under the provisions of the Act of December 17, 1914, provided they are registered as physicians or practitioners under the laws of the state and the affidavit is made in application for registration, on Form 678, as required by T. D. 2215 of June 10, 1915.

DAVID A. GATES,

Acting Commissioner of Internal Revenue.

Approved:

BYRON R. NEWTON,

Acting Secretary of the Treasury.

The Government of the United States has heard their plea. It has read their law, and has declared that they are "practitioners" and are entitled to prescribe drugs. This they cheerfully do, even while obtaining exemption from the necessary education and training, and evading examination and registration by the health authorities of the state, being licensed by their own special board.

Such special boards should be wiped off the statute books of Missouri. All "practitioners" should be licensed by the same board.

The chiropractor followed closely in the path of the osteopath in his route of evading the educational requirements of all states, and avoiding the jurisdictions of the State Boards of Health and Licensure. He evades and avoids by the special law he seeks, boldly declaring that treating the sick by his method is not the practice of medicine.

House Bill No. 346 introduced into the Fifty-Second General Assembly is as follows:

"Be it enacted by the General Assembly of the State of Missouri, as follows:

"Section 1. The system, method or science of adjusting by hand, displacements of the vertebral column or tissue related thereto, commonly known as chiropractic, and as taught in the chartered schools of chiropractic, is hereby declared not to be the practice of medicine and surgery within the meaning of Article I, of Chapter 65, Revised Statutes of Missouri, 1919, and not subject to the provisions of said Article."

Thus there is sought to place as guardians of the health of our people these two special branches, which neither by education, training nor state control are to take any responsibility for its epidemics or its diseases. They have devised an easy, short path to the title of doctor, made honorable by our profession after

many years of service. They have laid out an easy short cut to an entrance into the professional life of a physician, with all its emoluments and none of its educational and training requirements.

The next class that has struggled for their "place in the sun," eager for the honorable title of "Doctor," striving for the place that ability, long study and careful training has granted to the regular graduates of a first-class medical school, such as are furnished by our state universities, by Washington University, St. Louis University, Harvard, Johns Hopkins, Philadelphia and others, the class who wishes to be proclaimed doctor when it is but an imitator, is the product of the low-grade medical school. These are of two types: the older medical colleges—a survival of the day when there was no medical school but the private school whose teachers were practitioners and new ones seeking the fees of students as an income for the so-called teachers. They are discredited by the health authorities of almost every state in the Union, because they do not give an adequate training in the recognition and treatment of disease. The cost of medical education in all first-class medical schools is from two to ten times the average tuition fee paid by its pupils. It ranges from \$600.00 per student per year to \$1,300.00 per student per year. The purchase of equipment, the maintenance of laboratories, the employment of teachers, the support of hospitals and clinics, carries the cost of education that is sufficient in the eyes of all organized health boards to enable its subjects to care properly for the health of the people from two to ten times above the tuition fees students can pay. The difference must be made up by state legislation or endowment. Yet the owners of these low-grade schools come to our legislature asking them to lower standards, shorten terms, remove needed courses of study from the curriculum, not that the people may have better service, but that *they* may realize a profit upon their insufficient investment. Hear what the Massachusetts Supreme Court says of all those who by various by-ways seek the honorable title of "Doctor," or seek to be enrolled in the Treasury Department's ambiguous designation of "Practitioners." (See Commonwealth vs. N. E. Cd Chiroprac. Mass., 108 N. E. r 895.) "Doctor is used to indicate skill in the general subject of medicine."

"Doubtless one purpose of the legislature in enacting the statute was to protect the public from the imposition and suffering which might follow the indiscriminate use of a title conveying the implication of skill to treat disease, by those who have pursued no adequate course of study to qualify them. "Chiropractic" is a new word. But it is held in Commonwealth

against Zimmerman, 108 N. E. R. 893, that one practising it may be found to be practicing medicine. "Degree," as used in this statute, is any academic rank recognized by colleges and universities having a reputable character as institutions of learning, or any form of expression composed in whole or in part of words recognized as indicative of academic rank, alone or in combination with other words, so that there is conveyed to the ordinary mind the idea of some collegiate, university or scholastic distinction."

"While this definition may not include all instances, it is sufficiently accurate for the present case. When a title like "Doctor," commonly associated with unusual skill or professional study in schools or colleges, is conferred, either separately or associated with other words, the statute is violated. The conferring of a title made up of the word "Doctor" and a word relating to the healing art may be found to be the granting of a degree within the meaning of the statute. The word "Doctor" in connection with an unusual and high sounding word would be quite as likely to impose on the ignorant and credulous as the false use of the conventional "Doctor of Medicine."

It would seem plain then, that one board should examine and license all those who seek to treat the sick, to the end that they be fit to do what they claim to do. And further, that the title "Doctor" should be authorized only to those of education and training commensurate with the dignity the title has acquired by the work of the medical profession.

And now, What of the Future?

(1) We are bound by our professional obligation to advise the public as to its duties and obligations in the matter of public health. Therefore we must advise them to allow only competent medical men to treat the sick.

(2) The decision of what are competent men must rest with a board of health of trained men of wide knowledge and mature judgment. Their choice rests with our chief executive, and neither politics, "Schools of Practice" nor personal friendship should guide in their selection.

(3) All persons who may treat the sick should register under this board. If they are fully educated and competent they may be allowed the unlimited practice of medicine and surgery, and the title of Doctor.

(4) If in the opinion of the health authorities and in the wisdom of the General Assembly partly qualified practitioners are needed, they should be classed as "limited branches" and kept within their limits.

(5) Country doctors are needed in country districts. The only boy who can be a country doctor is a country boy. If our present medical college standards and curriculum is out

of line with the education of such boys for such a career the fault should be found and corrected.

(6) The low-grade medical schools and the high-grade osteopathic schools should either be brought within the standards recognized by the state as schools for practitioners and their graduates licensed, or they should be closed. Young men and women must not continue to be educated at great loss and cost to themselves only to find that they cannot practice in that state that chartered their college.

I leave this with you. I wish to say it will be necessary for this Association to make such provision as in the wisdom of the general meeting and its House of Delegates and its Council may seem necessary to keep this work constantly in hand. This is 1923.

1316 Rialto Bldg.

DISCUSSION.

DR. W. T. ELAM, St. Joseph: I must acknowledge, as will all of you, I am sure, the deep interest I have in this subject. It must necessarily reach the very foundations of our medical teaching and practice. As the doctor has well said, the practice of medicine is not altogether a professional question, but a question which deals with the health of the people, and whether we will or not, we must necessarily make some effort to protect them from themselves.

The limited branches that have been spoken of have become so powerful that they are now a matter of considerable concern, not alone to the profession, but to the people of this commonwealth. As a matter of fact, they are gradually taking up the practice of medicine, in the country districts especially. We find they are invading the cities, not only in the field of medicine itself, but they are beginning to do surgical work—perhaps in some particular localities with a fair degree, at least, of manual success.

The truth about the matter is, these men are not qualified from the point of preliminary education, nor from the point of medical education, to practice either medicine or surgery.

The main point I want to discuss is the question of how we can offset the activities of these people or of this class of people, and overcome in a way their evil effects upon the whole state. We must lay aside the question of the effect upon our profession or our income as professional men and take the broader view of the situation, recognizing that, as the doctor has said, we have assumed, and many of us forget this, to take care of the health matters of the people of this state, just as we have assumed to do in other states.

You and I know when it comes to discussing a matter of this character with a representative or a senator, he says, "Doctor, you people want to form a trust." He puts you on the defensive. We do not want to do that at all. That it might result in greater financial returns to the individual doctor is possibly true. We have families, and those families and the members of those families have a right to protection from this class of people and from epidemics. It is a matter primarily of your own citizenship. You and your family have the right to be protected and upon that right as citizens rests our claim and argument in the effort to get legislation through that will enable us to protect our people. We cannot hope for the help of these limited classes of practitioners, because regulation means their death, absolutely.

How can we best proceed to get results in this particular question or proposition? How do they get results? Through money. How many of you men in this Society are able and willing, like Dr. Pearse, to give up a great amount of your time to go to Jefferson City and there fight the battles of the people of the State of Missouri? And while fighting, he recognizes his inability to reach out and do things he should, for the reason he has not the financial backing he should have. Gentlemen, we should have a large legislative fund on hand continuously, and I have introduced a resolution which I hope will be introduced into this general session, creating a public health bureau. This was introduced in the Buchanan County Medical Society, asking the House of Delegates to make arrangements for the proper financing of this bureau, so we can be in touch at all times with our representatives and senators, and, as has been suggested, in touch with the conditions throughout the state.

I had the honor, I believe, of introducing into this Society the resolution which created the medical defense fund. I believe it has been of great aid to the Medical Society and the medical profession of this state, as I also believe this resolution will be of great value to the people of this commonwealth.

If we should pass this resolution, instructing the House of Delegates to make arrangements, either by increasing the dues of the members of the Medical Society or by appropriation, or any other manner, whereby we can have a sufficient sum by the time the legislature meets, with which to work, it would enable a man like Dr. Pearse not only of influencing the voice of the people for the right kind of legislators, but to see that they pass the right kind of laws.

I do not suppose there is a man within the sound of my voice who does not endorse all Dr. Pearse has said. I do feel, as he mentioned in his fifth conclusion, that there should be some provision made whereby a country doctor could be educated, perhaps not to that extreme point which we expect today to find in those pursuing special lines in the city, but to a point where he could pass an examination and be entitled to the title of "doctor," and as a result of that education, be entitled to the recognition of the regular doctor and be able to fraternize with him. I take it—I do not know whether Dr. Pearse agrees with me or not—that a poorly equipped regular doctor, admitted to the benefits of consultation and fraternizing with regular doctors, has a better chance of doing the people some good than the osteopaths and chiropractors not admitted to the fraternizing influences and consulting privileges of the regular medical profession. Therefore I think there should be some adjustment made by our institutions whereby the conferring of the degree of "M.D." or some similar degree would enable men to go into the country districts and practice medicine with a fair degree of intelligence and with a fair hope of extending their sphere of usefulness.

DR. ERNEST MITCHELL, Monett: This splendid paper has been ably discussed and the hour is getting late, so I will not detain you but a moment. A thought has come to me while sitting and listening to the paper and to the discussion: that it has not yet gone ~~back~~ to the root of the evil. By that I mean our education on any proposed legislation must begin in our home town, in our home counties, and reach the people.

I have had the honor—if I may call it such—to have represented my constituency in the lower House on two different occasions. I have been in close contact with the working ways of the legislature and the thinking ways of that body. You would be surprised if you knew that every act, every bill that is introduced for the betterment of the public, is imme-

diate open to suspicion by the members of the legislature. They have been taught to believe that our actions toward the improvement of public health matters are governed by selfish motives for our own betterment. Therefore, I say if you wish any bill to pass—any medical acts such as we have in mind and such as the paper we have listened to has described—we must begin with the education at home of the people, and especially of our representatives. They must go to the legislature with the idea in their minds that when they get behind something for which the Missouri State Medical Association stands, they are not "making laws for the doctors," which is the common expression, but they are going up there with high ideals and for the purpose of forwarding public health in the State of Missouri.

As soon as you are able to disabuse their minds that what we ask is not for selfish motives, but for the good of the public at large, you have accomplished your first step toward securing legislation which will be of benefit, not only to the public, but also to us.

You would be surprised also if you knew how the public at large feels toward the entrance of the physician into politics. I believe the majority of the people in the State of Missouri believe a doctor is exceeding his authority when he asks for a place in one of the legislative halls. They have come to believe that one or two members of this profession can sway the legislative bodies to such an extent that they are dangerous. Of course, this has been put out by our enemies who have their private axes to grind. But you must disabuse the mind of the future legislators that what we do is for selfish reasons, but for the good of the entire state at large.

DR. ABRAM MILLER, Kansas City: As the previous speaker said, it is pretty nearly time to eat, and I do not want to delay you further; yet I cannot feel it would be fair to pass this moment without expressing appreciation of the work that has been done by these men who have presented the legal aspect of the medical fraternity in the State of Missouri as it is today.

Idealism, altruism, and all those expensive phrases are cheap, absolutely cheap and unexpressive, alongside of their actual workings, the personal sacrifice and the good that they have accomplished for us, be it ever so small; because whatever has been accomplished has been accomplished under the greatest of stress. We who have sat on the side lines and cheered have felt: "That is our committee. That is what they should be doing." But it isn't. They have not had our support, and still they have done it. So aside from any action taken in the council, I think a vote of thanks should be extended these men from the floor of this body, and an expression of confidence and appreciation for their work, and hope for their continuance in it. I make such a motion.

The motion prevailed.

DR. C. R. WOODSON, St. Joseph: I fully appreciate the splendid work Dr. Pearse has done, and I think we ought to compliment him on it.

It is not possible to control the Missouri legislature with one man or one committee. I am a believer in harmony. Fifty years ago I joined the Missouri State Medical Association. At its revision twenty years ago, I got out of a sick bed to go to a meeting of my Society to work for harmony, when it was split into two factions. Whether I had anything to do with it or not, we did harmonize, and our County Society has been working for the welfare of the Missouri State Medical Association, as well as the people.

If we can have men who have influence with legislators to go to them quietly and ask for their support, much will be accomplished. If I have any

influence, or ever had, it was by quietly going to a man I knew I might influence, and staying away from the man I knew I could not. I have been called before the legislature and have gone, and without pay; and there are still members in this body who are public-spirited enough to do that. I do not mean there ought not to be a paid committee, but there should be all the help rendered that is possible. There is not a member of this Society but who can exert an influence with the man who is running for the legislature by going to him quietly and asking him to help all he can. If we do this, we can make it easier for Dr. Pearse, or for the State Board of Health.

It may be necessary to raise some money once in a while. While my health is not as good as it used to be, call on me and I will try to do it. You can ask if I have not raised the proper funds when it was necessary, not by legislation or anything of the kind, but the members of my Society contribute liberally for anything.

I was broken in health when this referendum matter came up. I had to go away from home for a while. I am getting back again. As long as I live I am willing to fight for the interests of the Missouri State Medical Association. I do not believe a man ought to be elected to an office in the Society if he is going to quit working for its interest as soon as his term of office expires. As long as this body is able to hold up, I am willing to do all I can.

ACCIDENTAL INTRASPINAL INJECTION OF NINE GRAINS OF NOVOCAIN

BART WILLIAMS, M.D.

JOPLIN, MO.

History. A large chubby housewife of 50. Blood pressure, excretions and physical examination negative.

Past history. Hysterectomy 11 months ago for bleeding uterus.

Present complaint. Bleeding cervix.

As patient was very nervous and vagina unusually tender we explained to her we would block the nerve supply to the cervix.

Since watching Labat at Mayo Clinic do local work, and using his book, we have made caudal block an almost daily office procedure in cystoscopy, hemorrhoidectomy and urethral strictures, and have done at least 50 per cent. of all laparotomies under spinal and transsacral anesthesia with such uniform satisfaction to patients and ourselves that we began to think accidents could hardly happen.

This patient was placed on a table (in hospital) on her abdomen. A pillow was placed under her lower abdomen to elevate the sacrum. We proceeded to do a caudal block after the method of Labat, using the lumbar puncture needle that comes with his local outfit. The needle was inserted into the sacral canal about two and one-half inches (6 cm.), stilet removed and two or three attempts to withdraw subarachnoid fluid were made. Feeling confident that the needle was not in the subarachnoid space, we filled the syringe with two per cent. novocain solution, and injected

25 c.c. of the two per cent. solution into the sacral canal, slowly, before the needle was withdrawn or moved; 5 c.c. of the two per cent. solution was distributed in the sacral canal as the needle was withdrawn. This is our usual technique and if properly done affords good anesthesia to operate on anus, perineum, vagina, cervix, penis, urethra and bladder. Occasionally, to make the anesthesia absolute, the third, fourth and fifth sacral will have to be blocked, which is easily and rapidly done.

The patient was asked to turn on her back. She said she was numb and could not turn. She was pinched on thighs and abdomen with hemostat. Anesthesia was complete. We recognized what had happened, and rapidly prepared to combat a high degree of shock. She was turned on her back and rapidly we prepared the shock stimulant recommended in Labat's book (caffein gr. 4, spartine sulph. gr. 1, soda benzoate gr. 5, strychn. sulph. gr. 1-60).

At this stage she complained of being sick, vomited, and said she felt death creeping up her body and soon it was going to reach her heart and kill her. We attempted to turn her to inject the stimulant in the subarachnoid space. This proved to be a cumbersome procedure which required too much time, for at this stage (about six minutes after the injection) her breathing and pulse were very bad. The above stimulant was injected into the femoral vein in her groin. Ice was applied to her face and she was placed in Trendelenburg position and encouraged to breathe. A double dose of ergotin (in ampule) was injected intramuscularly. At this stage (about eight minutes after caudal injection) she became unconscious, pulseless, cold and clammy. Her pupils were widely dilated. She breathed about three or four times a minute, and only a faint vibration of her heart could be heard. She was so limber it seemed that the skeleton had lost its calcium salts. She was rapidly put to bed in exaggerated Trendelenburg position, and heat was applied. Unconscious, and still pulseless, she continued to breathe five or six times per minute without artificial aid. By now (about 15 minutes after caudal injection) we were ready to start the normal salt solution. This was given into the femoral vein at same location as the shock solution. After an ounce of the NaCl had flowed into the vein, 2 c.c. of adrenalin were injected into the rubber tube near the needle, and seven more ounces of the NaCl solution were allowed to flow into the vein. At about twenty-five minutes after the caudal injection we injected into the rectum (high up) three ounces of strong coffee, two ounces of whiskey, and one ounce of glucose. We realized the stimulation in this case

was much out of the ordinary, but we felt that our only chance was to stimulate the brain cells so that the respiratory and cardiac centers would be forced to function until the anesthesia could pass off.

It was about forty-five minutes after the caudal injection before any signs for the better were noticeable. A faint vibration could be felt at the wrist, whereas before we could hear only an indistinct sound over the heart. Now we could clearly count the sounds, running about 167 per minute. Her breathing remained about six to eight per minute, and at no time did we assist her breathing by artificial aid. Her pupils began to contract. At fifty-five minutes after the caudal injection she opened her eyes and weakly remarked she had been dead. We never abused her thought but explained to her she had only fainted. During the next fifteen minutes she became perfectly rational, and with hemostates she was pinched over her body, including her chest, arms and neck, and we found that from the base of her skull down she was completely paralyzed. At this stage her cervix was exposed and the radium inserted into the cervical canal.

Recovery was rapid and complete. At the end of eighty minutes from the time of the caudal injection the paralysis began to disappear, first in her arms, next in her feet and legs, and lastly in her abdomen and chest, in order named. At the end of ninety-five minutes the paralysis had disappeared. I have asked Dr. Labat, whom I believe we are agreed is an authority on subarachnoid anesthesia, to discuss this case.

(1) How could I have avoided the subarachnoid injection?

(2) What would have been the best plan of treatment to have followed?

(3) What precautions should I have taken that I did not take?

(4) The solution injected was made from Metz concentrated ampule (novocain 1 gm., suprarenin 0.00055 in 5 c.c. sterile solution). This concentrated ampule was added to 45 c.c. normal salt solution, made from double distilled water. Did the solution have a higher or lower specific gravity than the spinal fluid?

(5) Why did we get such an extensive paralysis?

conference between the heads of departments and their associates, to outline a definite course of instruction and prevent unnecessary repetition of subjects, thus saving much time for the student. The departments of anatomy, pathology and clinical medicine should harmonize perfectly in order to produce the best results. Anatomic studies on the cadaver should be correlated by physical examination on the living; normal organs should be compared with pathologic conditions in the same organs; the course of a disease, the clinical symptoms and physical signs should all be discussed in relation to the anatomy and pathology, showing how one condition is dependent on the other, and how the physical signs and symptoms are produced. In other words, these subjects should be so correlated as to establish a closer relationship between the symptoms, physical signs and pathology. This is the ideal way in which to teach physical diagnosis so that it will be of the greatest value to the student of medicine, and enable him to practice his profession more intelligently and render a greater service to mankind.

ARTERIOSCLEROSIS AND CARDIOVASCULAR DISEASE.—Five hundred consecutive complete necropsies were selected by William Ophüls, San Francisco (*Journal A. M. A.*, March 12, 1921), to study the interrelation between certain infectious diseases and the later development of arteriosclerosis or of the syndrome of cardiovascular disease. This investigation again brought out strikingly that there is no direct relation between the extent and severity of the arterial disease and the amount of functional disturbance in the cardiovascular system. The special involvement of certain vascular territories, like that of the kidneys; also did not seem to be of any particular importance in this connection. Arteriosclerosis and hypertension are, therefore, rather loosely associated phenomena, possibly connected with each other by their common relation to certain infections, which at times may produce merely a severe functional reaction on the part of the arteries, at times marked anatomic lesions in them, or both severe lesions and marked functional derangement. The only really tangible connection between arteriosclerosis and chronic nephritis seems to be their common etiology, their interrelation in this regard being very similar to that between arteriosclerosis and hypertension.

NONOPERATIVE TREATMENT OF FRACTURES OF CERVICAL VERTEBRAE WITH CORD INJURY.—The four cases cited by Michael Osnato, New York (*Journal A. M. A.*, June 18, 1921), gave a mortality of 25 per cent. with undoubtedly cord injuries. From the neurologic findings, the first case was probably a complete crush of the cervical cord, and resulted, as all of these cases do, in death within a few months after the injury. The other three cases were examples of partial involvement of the cervical cord, and all three of the patients recovered without operation.

MEDICOLEGAL APPLICATION OF THE BLOOD GROUP.—The criteria of Ottenberg to govern legitimacy by means of the blood group are asserted by J. Arthur Buchanan, Pueblo, Colo (*Journal A. M. A.*, July 15, 1922), to be dangerous. The blood group cannot be used in the adjudication of medicolegal disputes concerning parentage without carrying the grouping back at least three generations, and even then there exists the possibility, because of the heterozygous status of a parent, of an unexpected, yet legitimate, group appearing without its definite origin having been determined.

PLEA FOR BETTER UNDERSTANDING OF PHYSICAL DIAGNOSIS.—If physical diagnosis is essential to the physician, Theodore Tieken, Chicago (*Journal A. M. A.*, June 18, 1921), says it is even more essential to the medical student. It is the duty of teachers to bring about such changes in the curriculums of our schools as are necessary to improve the teaching methods in this very important branch of medicine. Correlation of subjects from beginning to end should be the aim; frequent departmental conferences to assure harmony and similarity in instruction, and

**THE JOURNAL
OF THE
Missouri State Medical Association**

OCTOBER, 1923.

EDITORIALS

FINANCE AND THE PHYSICIAN

Whether are not the oft-repeated charge that physicians are poor business men is true, it is nevertheless a fact that physicians as a class fall easy prey to the promoters of schemes that promise large returns for small outlays. They and college professors seem to be so wrapt up, so completely submerged in their chosen work that mere money getting, mere workaday world investments and business propositions have no place in their time or thoughts.

The burden of this fact does not rest alone on the shoulders of the physician, true. There are poor business men in business but we usually think of the physician as having a somewhat higher type of mentality than the poor dub in business who fails. And because of this very evident difference in mentality it seems a shame that every showy business scheme, every wildcat oil proposition must number among its victims a certain percentage of physicians.

To awaken our members to the importance of giving the much needed time and thought to the importance of money making investments and speculations, THE JOURNAL is publishing a series of articles by Samuel O. Rice, Educational Director of the American Investment Bankers Association. Mr. Rice is a convincing writer and one thoroughly versed in his subject and amply qualified to give the information needed on these matters. The first of these articles appears in this issue of THE JOURNAL on page 360.

RETAINING THE PHYSICIAN

The problem in certain rural communities concerning competent medical attention has been solved in some sections by the people providing a stipulated sum sufficient for a reasonable livelihood contributed to the physician in advance. For this sum the physician undertakes to attend the people in their ordinary illness but is entitled to extra compensation for certain extraordinary work.

We have observed accounts of such an arrangement in several states but recently the first instance of the kind coming to our attention was mentioned in news dispatches from Martinsburg, Missouri, which state that the

people of Shamrock, a town about ten miles from Martinsburg, upon learning that their physician was about to leave because of inability to gain a reasonable living among them in his professional work, held a meeting and collected more than \$1,000 which was paid to the doctor in advance. It is also stated that they requested the physician to raise his fees for service commensurate with the necessities of living. The physician has agreed to remain at Shamrock.

NEW DEAN WASHINGTON UNIVERSITY MEDICAL SCHOOL

Dr. W. McKim Marriott, Chief of the Department of Pediatrics, Washington University Medical School, St. Louis, has been appointed dean to succeed Dr. Nathaniel Allison who resigned to become professor of orthopedic surgery in Harvard University Medical School with direction of orthopedic work in the Massachusetts General Hospital.

Dr. Marriott was professor of biological chemistry at Washington University 1910-1914. In the latter year he accepted the position of associate professor of pediatrics in Johns Hopkins University, holding that position until 1917 when he returned to Washington University as professor of pediatrics.

Dr. Marriott graduated from Cornell University Medical School in 1910 and has won high distinction as a pediatrician and writer on diseases of children.

PRIZE FOR THE BEST PAPER READ BEFORE THE KANSAS CITY ACADEMY OF MEDICINE

Several years ago a friend of the Jackson County Medical Society offered a prize of \$100 to the contributor of the best paper read before the society during the year and two members have won the prize. Recently Dr. J. D. Griffith, of Kansas City, has offered to contribute a prize of \$100 for the best paper read before the Kansas City Academy of Medicine. The award will be made at the last meeting of the year, May 2, 1924.

The Kansas City Academy of Medicine has recently requested THE JOURNAL to serve as its medium of publicity and we expect to publish the proceedings of the Academy. We hope, too, that many of the papers read before that body will appear in our JOURNAL.

THE OCULIST

Owing to the fact that ethical physicians do not advertise, the general public frequently does not realize the difference between the oculist and the advertising eye specialist, and

very often has its eyes examined by the latter, believing that it is receiving the services and attention of a physician.

The word "Doctor" or the prefix "Dr." does not always mean a "Doctor of Medicine," but the letters "M.D." at the end of the same signifies physician, "Doctor of Medicine."

The oculist is a physician, a specialist in the diagnosing and treating diseases of the eye and the correcting of abnormal conditions of the refractive media of the eye by scientific examinations and the prescribing of the proper correcting lenses.

As many serious organic disturbances make their first appearance in the eye, the oculist, because of his knowledge of the practice of medicine, is the first to recognize the diseased condition that may exist and both under the law and by his knowledge is in a position to consult with your attending physician, if necessary; it is manifest, therefore, that the interest of the patient can best be served by the oculist.

While poor vision is not in all cases due to a pathological condition, very frequently the vision may be improved by the use of lenses and a pathological or diseased condition entirely overlooked.

A common practice, due to a lack of knowledge, is to give concave glasses when either no glasses or convex ones are needed. The effect of concave lenses is to make objects appear blacker and more distinct, so that the patient thinks his vision is improved, but the net result is eye strain, with its symptoms of headaches, sleepiness, etc.

It is without question, therefore, that the safest and most reliable way is to first consult an oculist, feeling certain that if glasses are needed they will be prescribed and in case they are not, you will be frankly informed and such advice given as may be necessary.

THE OPTICIAN

A mechanical workman experienced in the grinding of lenses, the assembling and manufacturing of frames and mountings.

The dispensing optician is one who has had extensive experience as a mechanical optician and who is qualified to accurately adjust, take measurements and fit correctly frames or mountings to the patient after the oculist has made the examination for any refractive errors. The optician is not qualified to do refractive work and should not be confused with the oculist.—*American Journal of Ophthalmology*.

OCULISTS, OPTOMETRISTS AND OPTICAL FIRMS

Epoch making acts usually are not recognized as such until long after their occurrence. As a rule, their significance is appreciated only

after their effect upon subsequent events has had time to manifest itself. But it is possible that we who are at present engaged in the practice of ophthalmology may be witnessing such an epoch making act, in the position recently taken by a well-known wholesale optical house. Briefly stated, this firm has closed out all of its accounts with optometrists, and has announced that it will fill prescriptions only when they are signed by members of the medical profession. In addition, it proposes to inaugurate a campaign, by means of which the public will be educated as to the differences between oculists and optometrists, and the essential limitations of the latter.

Heretofore, oculists have always been on the defensive against the attacks of the optometrists. In common with other "get knowledge quick" groups of pseudo-medical practitioners, the optometrists have been waging an offensive (in both senses of the word) campaign to obtain legal recognition in the several states of the union, and hardly a year passes without the oculists of some state being compelled to appear before its legislature to combat their activities, sometimes unfortunately to no avail. Whenever the oculists have appeared in an active capacity, it has been before some medical society or in some medical journal, informing their confreres of facts which they already know. They have been barred from the public press, partly from fear of appearing unethical, and partly because the public press, from motives of self-interest, or otherwise, has refused to present their side of the question.

This anomalous position has long been recognized, and at the 1921 meeting of the American Academy of Ophthalmology and Otolaryngology, a Committee on Publicity and Service was appointed to consider the question of the proper method of acquainting the public with necessary medical facts. This is a step in the right direction, and if it is assisted by the action of the non-medical organizations, so much the better. The present status of refraction is an evolution from the days of the itinerant spectacle vender; but the instruction of the consumer has not kept pace with the progress of those whose duty and privilege it is to supply them with correcting lenses. Anything which tends to alter this state of affairs should be welcomed.

Another phase of this firm's action is its refusal to supply lenses to optometrists. Oculists in the smaller cities, and those in the larger ones who supply their patients with lenses through the medium of wholesale optical houses have been forced to obtain such lenses, etc., from the same firms which supply optometrists. Not only is this true, but it is stated that some firms make a special, lower price

to optometrists, thus introducing the element of unfair competition. Optometrists are organized for action; oculists for science. If oculists would realize what a force their united numbers could exert, by patronizing firms which cater exclusively to them, a revolution would be brought about in the attitude of other firms. They would realize that oculists would have a choice between "fair" and "unfair" firms, and many of them would undoubtedly swing into line. A decided check would be given to the activities of optometrists, for when an army is engaged in preventing the turning of its flank, it has little leisure for aggressive action. When a firm states by words and acts that it does not desire the accounts of a certain group of men, such action exerts a moral force beyond its immediate and direct results. In defending themselves from the implications produced, optometrists will hardly have time to attempt new inroads on the medical profession.—C. L., in *American Journal of Ophthalmology*.

BOOKS FOR LEISURE MOMENTS

*Reading with discrimination broadens the mind
and strengthens the mental grasp*

A most unusual and absorbing book and one every physician should read, is "A Mind That Found Itself," by Clifford Whittingham Beers (Doubleday, Page & Co.). It is more fascinating than a "best seller" and more amazing than an Arabian Nights' tale. As an autobiography of an unusual period in a man's life it stands alone. Through stress of circumstances, over-work and lack of care, Clifford Beers, for a time, lost his reason but retained his memory. His shocking treatment at the hands of untrained attendants and unscrupulous physicians is amazing. And through all this maze of bewildering thought, this groping for the light, this brutish abuse, Mr. Beers on regaining his health holds no malice against his keepers. He has been fired by a lofty purpose and seeks only to accomplish his ends—that of reform in the care of the mentally diseased and incompetent. In no better manner could he help the cause he is championing than in the presentation of his own case and treatment in story form.

It is a book that will stimulate thought in the minds of those whose work in life is to heal the sick and out of that thought will evolve a new system of care for those so unfortunately situated and Mr. Beers' lifelong dream will be accomplished.

An altogether delightful book, both in appearance and in subject matter is "The Old English Herbals," by Eleanour Sinclair Rohde (Longmans, Green and Company, New York).

The volume is profusely illustrated with old prints from ancient books on herbs. Some of these are most exquisitely colored. Exhaustive research was made to furnish the material and the information so obtained has been woven together in a most fascinating manner and makes a very valuable contribution to botany and literature. Both the author and the publisher are to be congratulated upon the production of such an excellent work.

Carrie Jacobs Bond wrote a little song once called "Doan yo' Listen," and a line or two of it says, "Yo neber git no hittin' till yo haids above the line. If yo hyah yo foes attackin', you know you's doin' fine."

This in thought is the essence of "A Calm Review of a Calm Man," an article about the late President Harding by Samuel G. Blythe (Cosmopolitan Book Corporation), one of America's foremost political writers.

It was this article that Mrs. Harding was reading to the President when he died and his last words were ones of praise for the things that were said of him.

It is indeed a fitting memorial to this calm citizen that this fair analysis of himself by so able an observer should be preserved in book form.

It is a small book, nicely bound, and one that every fair-minded American ought to read. It is, of course, of Mr. Harding but the philosophy, the human understanding, the fairness with which it is written will help not only to understand Mr. Harding and his administration of the nation's business but it presents in a new form, forcibly, the idea of American "fair play."

NEWS NOTES

THE Jackson County Medical Society Golf Tournament was held September 28 at the Blue Hills Club.

THE annual golf tournament of the members of St. Louis Medical Society was held at Midland Valley Country Club, October 5, 1923.

DR. C. C. DRACE, of Holcomb, has taken over the office of Dr. A. Dutzi, 3325 Chippewa Street, St. Louis. He will limit his practice to diseases of children.

DR. HERMAN E. PEARSE, of Kansas City, Chairman of the Committee on Hospitals, delivered an address before the Catholic Hospital Association at St. Louis, September 11, 1923.

OTTO A. SCHULTZ, of St. Louis, a so-called spiritualist healer, was found guilty of prac-

ticing medicine without a license September 19, and sentenced to 90 days in the workhouse.

DR. G. A. JORDAN, Hospital Commissioner of St. Louis, and for more than thirty years in the service of the health department of that city, is ill at St. Luke's Hospital, suffering from a complication of diseases.

There will be a University Medical College Alumni Reunion Banquet, Tuesday, October 9, at 7:30 P. M., in the Francis 1 Room, Hotel Baltimore, Kansas City, Missouri. Price, \$2.00 per plate. For information address Dr. Hermon S. Major, Chairman Entertainment Committee, 3100 Euclid Avenue, Kansas City, Mo.

THE Mississippi Valley Medical Association will hold its 48th annual session at Hot Springs, Arkansas, October 9, 10, and 11.

An unusually strong program has been arranged and with a tour of the Reservation with its wonderful natural phenomena and a session at the famous Government Clinic, this promises to be a very interesting meeting. For further information, address Dr. Charles Travis Drennen, chairman of the Committee on arrangements, Hot Springs, Arkansas.

THE Rock Island Surgical Association held its annual meeting at Kansas City, September 13. About 200 physicians from points along the Rock Island Railroad attended the meeting. Clinics were held at the Kansas City General Hospital, Dr. John L. Porter, of Chicago, and Dr. C. B. Francisco, of Kansas City, demonstrating cases. The wealth of material at the clinic proved that there are large possibilities of using the Kansas City General Hospital as a center for post-graduate work.

THE enrollments for the courses in the dietetic and insulin treatment of diabetes which are being given at the Barnes and St. Louis Children's Hospital are filled for the periods beginning October 1 and October 15. There are some vacancies in the course beginning October 29. Applications have been received not only from a very considerable number of places in Missouri but also from the states of Kansas, Iowa, Texas, Oklahoma, Nebraska, Illinois and Minnesota. In view of the interest shown it has been decided to give courses November 12-14, November 26-28, December 10-12 and December 27-29, the above dates inclusive.

The courses will consist of (1) lectures; (2) ward rounds; (3) practical dietetic demonstrations in the kitchen including the calculation of diets; (4) laboratory demonstration in

necessary laboratory methods for careful treatment; (5) special instruction in the treatment of diabetes in children.

Physicians desiring to take these courses should write to the Superintendent of Barnes Hospital, 600 S. Kingshighway, St. Louis.

THE second meeting of the Missouri Conference of the Catholic Hospital Association of the United States and Canada, was held in St. Louis, September 11th, 12th and 13th, 1923. Over two hundred Sisters were present, representing the Catholic hospitals throughout the State. Members of the clergy, doctors and nurses also attended.

The morning session of the first day was opened with Mass, Rev. Matthew Germing, S. J., celebrant. The sermon was given by His Grace, Most Rev. J. J. Glennon, D.D., Archbishop of St. Louis.

The remaining sessions were held at the St. Louis University School of Medicine. The meeting was formally opened Tuesday afternoon at two o'clock with addresses of welcome by Rev. Chas. Cloud, S. J., Regent of the St. Louis University School of Medicine; Mother M. Concordia, President of the Missouri Conference; Wm. Vogt, M.D., President of the St. Louis Medical Society; Herman E. Pearse, M.D., Kansas City, Chairman Committee on Hospitals, Missouri State Medical Association.

The papers and discussions were rendered on the afternoon of the first day, the morning of the second day and the morning of the third, closing with the business meeting at which officers were elected for the ensuing year. On the afternoon of the second day the members of the Conference were taken to visit the Government Hospital, Koch Hospital and "The White House," a place of Retreats for Laymen conducted by the Jesuit Fathers. The afternoon was a most enjoyable one and many valuable ideas were obtained from the institution visited.

Subjects of general interest as well as those pertaining to special departments of the hospital were brought up in the papers and in the discussions following them. Those attending went home with an enthusiastic appreciation of the great field for good which is open to the Missouri Conference in the way of being an aid in the advancement of hospitals and medicine. The officers for the coming year are: Sr. M. Giles, St. Joseph's Hospital, Kansas City, President; Sr. M. Petra, St. Mary's Infirmary, St. Louis, First Vice-President; Sr. M. Constance, St. Anthony's Hospital, St. Louis, Second Vice-President; Sr. M. Alphonsus, St. John's Hospital, Joplin, Third Vice-President; Sr. M. Marcelline, St. Mary's Hospital, Kansas City, Secretary and Treasurer.

FINANCE AND THE PHYSICIAN

WHY DOCTORS BUY WORTHLESS AND FRAUDULENT SECURITIES

SAMUEL O. RICE

Educational Director, Investment Bankers
Association of America

CHICAGO

Physicians who number bond men, investment bankers, among their patients frequently complain that bond men squander their health.

"The heads of three bond houses," my family doctor said to me the other day, "are patients of mine, they and several subordinate officers of other houses, and I'll be hanged if they aren't more careless with their health than is all the rest of my practice put together. They'll work like demons for months at a time and then try to make up for the loss of daily exercise and common sense routine by trying to crowd a year's recreation into a few weeks. They'll eat, and drink, too, a lot of stuff that's bad enough at home, but is doubly damaging when they take frequent business trips with irregular hours, heterogeneous food and the unavoidable strain of an exacting business. They are the worst spendthrifts of health that I know among intelligent men."

"At least they are not as bad as doctors," I replied, to my friend's amazement. "When they need medical service you've got to admit they don't go to quacks for it. They go to the reputable profession and to recognized specialists, don't they?"

"What has that got to do with it?" the doctor asked. "Physicians can't avoid irregular hours, but they're not—"

"The argument is," I interrupted, "on the use of common sense, isn't it? You say that bond men don't use common sense about health. But as lax as they are in that they are not as lavish in squandering health as physicians are in squandering money in so-called investments. Bond men at least exercise common sense enough to realize that it requires a doctor to exercise medical judgment for them? How many physicians realize that it requires a "doctor" of investments to select investment securities dependably? Ever hear of an investment banker being swindled by a quack practitioner? No, because they know that you've got to go to reputable practitioners. How often are physicians swindled by quack investment schemes? There are just two reasons why doctors, as a class, are notable for buying worthless securities. One of them is their failure to realize that in seeking good, sound investments you have to do exactly the same

thing you do in seeking health—consult an honest, competent practitioner."

"What's the other reason why we buy worthless securities?" my friend asked with a smile. "Because doctors are not business men?"

"That's the reason usually given, but I don't believe there's anything to it. The second reason is too much optimism."

"When did you study medicine, that you speak so authoritatively on the profession?" my friend laughed.

"Only a short course in bacteriology, because it was intensely interesting," I replied, "but my several roommates in college were medical students. Subsequently as a university faculty man I had close friends in the medical school faculty. As a young newspaper man I knew many physicians, surgeons and internes in various hospitals. Some of my best friends—one a pal—are physicians. I married a trained nurse. As the father of three small children with the concurrent experience with measles, diphtheria, adenoids and other worries, don't you think I've shown pretty fair judgment in selecting physicians? Ever know of me picking a quack for medical services any more than I would pick a quack from whom to buy investment securities?"

"All right, all right—the first reason that we buy worthless securities is because we have not recognized that investment banking is a highly specialized calling, just as is medicine; let's have the optimism part of it."

"It's brief. There isn't a one of you who doesn't believe that next year's practice is going to be a lot more remunerative than this year's. Your first years of practice, when you started with nothing and gradually built up your income, taught you that. It's firmly fixed, perhaps subconsciously, in every doctor's mind. It's a life thought-habit of the profession, besides being a somewhat common human trait. Well, if things are going to be better next year, I'll just take a few hundred dollars of the stock of this patent electrical device or in that new serum outfit, you argue. Thousands of little oil and mining companies have been organized in the last few years among little groups of friends in every town, city and hamlet in the United States and have blown up after losing the money put into them. I'll wager that in every such little venture 90 per cent. of them have had one or more physicians as stockholders. As a profession, you are so confoundedly optimistic that you let your optimism run away with your better judgment, and you accumulate a lot of nondescript interests in a number of things you know nothing about and that have little or no value when your widow tries to realize on them."

"Yes, I guess some of that is possibly true," my friend admitted.

"True, of course, it's true. Six months ago I had a little ready money and I asked you to send me your bill. I telephoned you twice. I got that bill last week, six months after I had put my little ready money into some sound investments, selected by an investment specialist and not by inexperienced friends or an easy-talking promoter. Now, when I'm shy of cash, you optimistically send me a bill. I'll bet you \$4 you are going to buy a new car. You are careless about collections, partly because it is in the code of your profession not to be mean and grasping. I honor you for that, but your eternal optimism is also a part cause. Oh, I'll get more money next month, you say; if not from Jones, from Smith. And you base your investments on the same kind of careless optimism.

"I'm serious in this, Roy. You wouldn't have a bit of sympathy with me if I disregarded the common sense that the medical profession has patiently drummed into the public for years, the fact that the public must consult reputable, competent medical advisors. You'd have a silent contempt for me if I let some quack or gaudy fake practice in my family or if I answered a cure-all medical advertisement. The so-called intelligent public has learned its lesson in medicine, that of consulting reputable practitioners. It is just as important that the medical public learn the same lesson as applied to investing of money. You nor no other physician can judge an investment security dependably, if you continue attending to your legitimate vocation. Even if you had time to do it, very frequently you haven't the facilities to determine the worth of a security. Investment banking is such a highly specialized calling that I doubt if any man has the ability to perform the investment banker's work without adequate training in the work. Physicians should be the first persons in the world to recognize this fact, but strange to say many of them do not. As a consequence, they are notably heavy losers in bad investments. And the cure for this bad investment condition is the same as in a human pathological condition—consult the reputable specialist who is competent to treat the case."

MISCELLANY

CURING PRINCE DON JAIME'S DEAFNESS AGAIN

Prince Don Jaime, second son of the king of Spain, has been deaf since his birth. More than three years ago the "International Feature Service," which furnishes lurid and sensational "features" for the string of Sunday newspapers that it serves, carried a full page article detailing in typical Sunday newspaper style the alleged cure of the young prince by a London "bone-setter." According to the article, the bone-

setter explained that the young prince's affliction was "caused by displacements of the atlas and axis bones of the neck" which, he went on to state, "produced a pressure on the great auditory nerve to the ear and caused deafness." The bone-setter, the story ran, "corrected this displacement" and "the boy immediately began to hear." At the time, THE JOURNAL investigated the matter and found that the claims were sheer buncombe. Soon after this article appeared, osteopathic colleges and individual osteopaths reproduced it in full and claimed that the wonder-working Londoner was a member of their cult. Chiropractors did the same thing. This was in 1920. Now, in August, 1923, the papers of the country are carrying news items to the effect that one "Dr." Curts H. Muncie, a Brooklyn osteopath, has just returned from Europe where, according to earlier newspaper reports, he had been called to treat Prince Don Jaime. According to the report in the New York Times, Muncie, after a manipulation, cured the prince of his ailment. From the same source we learn that Muncie declared that the lad's deafness was due to "a state of complete deformity" of the eustachian tubes, and Muncie's treatment was simply that of "reconstructing the eustachian tubes"—a mere bagatelle for an osteopath. Presumably, we may look for another advertising campaign on the part of osteopaths and chiropractors detailing the marvelous results that these gentry are able to obtain. Meanwhile Prince Don Jaime is still deaf!—*Jour. A. M. A.*, August 11, 1923.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL, FOR 1923

(UNDER THIS HEAD WE LIST THE SOCIETIES WHICH HAVE PAID THE STATE ASSESSMENT FOR ALL THEIR MEMBERS)

Chariton County Medical Society, December 31, 1922.

Webster County Medical Society, January 6, 1923.

Madison County Medical Society, January 15, 1923.

Cape Girardeau Medical Society, January 23, 1923.

Camden County Medical Society, February 1, 1923.

Clark County Medical Society, March 5, 1923.

Perry County Medical Society, March 27, 1923.

Vernon County Medical Society, April 7, 1923.

Schuyler County Medical Society, May 3, 1923.

Howell County Medical Society, May 5, 1923.

CARTER-SHANNON COUNTY MEDICAL SOCIETY

The Carter-Shannon County Medical Society met at Eminence, July 26, with the following members present: Dr. Frank Hyde of Eminence; Dr. W. T. Eudy of West Eminence; Drs. T. W. Cotton and H. L. Meador of Van Buren; Dr. C. C. Sheets of Elsinore, and Dr. A. Johnston of Grandin.

The meeting was called to order by the president, Dr. Johnston, who read a splendid address.

The business was taken up in the order of importance, the matter of contributions to the Public Health Fund ranking first. It was voted by the Society that \$5.00 be given for each member, each making a personal contribution.

The next question discussed was the matter of persons who are quacks, who advertise, and who claim to be specialists. It was voted by the Society

that we in no way should aid such persons and that we should do all in our power to stop such practices.

The secretary's report was read next.

A fire having destroyed all the records of the Society, it was decided that a new set of by-laws should be drafted for the next meeting and Dr. T. W. Cotton was appointed as chairman of a committee whom he might choose to draw up said by-laws.

There being no further business, the meeting was adjourned until the latter part of August, when two sessions will be held, one in the afternoon at 1 o'clock at Elsinore, and the second at 8 p. m., at Grandin.

H. L. MEADOR, M.D., Secretary.

The president's address follows:

Address of President Dr. Alexander Johnston to the Carter-Shannon County Medical Society.

Fellow members of the Carter-Shannon County Medical Society:

In calling this meeting to order, I desire to thank you for the honor conferred in placing me in the presidential chair of this Society. I also express my regrets that we have been unable to get together earlier this year. The fault, however, has not been due to the officers of the Society, but to distance, emergencies and weather conditions. While our membership is comparatively small, still there are enough of us to instill enthusiasm and effective work in taking up the many problems that are of interest to us, individually, collectively and professionally.

The first, perhaps, to be weighed carefully is our relation to ourselves and our patients. The next, our relation to each other personally, ethically, morally and professionally.

Next, we should consider our duties to the Society and the public at large, in accordance with statutory laws and the mandates of the federal and state public health service, the child welfare bureau under commission of the federal government.

Likewise the bureau of vital statistics of our state has claims upon our fraternity to perform a service, gratuitous in nature, for accurately recording the births and deaths of our communities, as well as reporting all cases of notifiable diseases.

In our endeavors to meet these duties we are especially handicapped. We still have numbers who are advising the afflicted, some of whom are licensed to practice medicine, but many, through habit, are advising the sick, recommending patent medicines and nostrums of their own concoctions, "white mule" being the principal ingredient.

Again, we have the "medicine shows" who periodically visit this and other sections of the state, where the laws are evaded or ignored.

These enterprises, conducted by adepts in getting the dollar, are ably assisted by vaudeville shows of attractive merit that always draw the crowds.

And, again, there is an intensive campaign of crusaders of "get the knowledge quick" variety, invading the communities under the names of cults, 'pathies, 'metrists, 'isms and cure-alls.

These collections, collectively and individually, adopting "business systems" are boldly attacking ethical standards through propaganda directed to the unsuspecting public and the uninformed and unwary legislator. No channel of human intercourse is overlooked.

We occasionally hear of members of the regular and reputable societies being lured into their methods and procedures.

In this section of the state, where the country is rather sparsely settled and doctors of repute few and far between, there seems to be a particularly rich

field for deceivers and transgressors to exploit and operate without opposition or hindrance.

So long as lassitude continues on the part of those entrusted with the welfare of the citizens of this section, the greater encouragement is given to this class of "get knowledge quick" and "get rich quick" element to dupe and defraud our people.

Unfortunately, if current reports are correct, far too large a percentage of our fraternity have adopted the "business motto," and have been led away to the shrine of these deceivers, get-rich-quicker and gay gamblers, and, in a measure, have forsaken the ideals, ethics and professional *solicitude* that the leading members of our profession have so ardently and faithfully upheld, while advancing principles and practice of the healing art and science for the benefit of the peoples of the world, from the beginning of civilization. The dawn of awakening from passiveness and lassitude is upon us. The American Medical Association, its House of Delegates, many state associations, are sounding notes of warning to the county units, imploring them to take notice of the situation and come forward with all the salient factors of education, science, law and humane experience, to thwart the baleful influences directed by these cults and their cohorts to lower the high standards of education and training of those engaged in ministering to those who are suffering from functional disorders, toxemic invasions and organic diseases.

Again, we have those who are exploiting our fellow-men with semi-laudable theories, emphatically expounded, to mulct suffering humanity of a few hard earned dollars for some worthless nostrum or appliance.

It is little wonder that the profession has been attacked through the magazines and popular press by scientific men of perverted interests, accusing some prominent physicians and manufacturers of proprietary and pharmaceutical preparations as well as the patent medicine distributors, of departing from the old and revered standards of medical ethics, statutory laws and equitable usages, and engaging in the popular race for the "almighty dollar" by resorting to the use of nostrums, medicaments and appliances, widely advertised and highly illuminated to impress the scientific and public mind.

While we cannot help being impressed by the rapid advancement of human knowledge in the various branches of scientific research, the rapid strides made in manufacture of all commodities useful to the needs of man, the many comforts and luxuries produced in manifold varieties for the betterment of the human race, still it is incumbent upon each and all of us to ponder these things, and not allow the unscrupulous activities of those who worship the "almighty dollar" to plunder our fellow-men with false theories, worthless nostrums and unprofessional promises.

We, as individual members, we, as a society, should reconsecrate ourselves with all the faculties and attributes we possess to the sacred cause of our profession, the high moral and ethical standards of our forefathers in advancing the interests of suffering humanity and the world at large, and pledge our utmost support to those who are battling for righteous laws, advanced legislation, ethical standards, scientific research, enlightened practice, equitable co-operation, high-minded sacrifice, humble, faithful and consecrated service.

This we owe to our Creator, to our forefathers, our fellow-men, our families, our children and our children's children, and in the faithful performance of these duties, with the love of God and man in our spirits, may we not hear a "wee sma' voice" say, "Well done, thou good and faithful servant"?

CASS COUNTY MEDICAL SOCIETY

The regular meeting of the Cass County Medical Society was held in the court room at Harrisonville, on Thursday afternoon, September 13, 1923. In the absence of the president the meeting was called to order by Dr. H. Jerard, of Pleasant Hill.

The first order of the program was the reading of a paper by Dr. W. G. Thompson, of Warrensburg, on the "Abuse of Purgatives as Revealed by the X-Ray." The doctor emphasized important facts in his paper and illustrated them by lantern slides showing contractions of the colon caused by the constant irritating effects of the prolonged use of cathartics.

Dr. Sam Roberts, of Kansas City, read the next paper on "Diagnosis and Treatment of Sinusitis." He called the attention of the physicians to important points in the treatment of these cases disclosed by the lantern slides.

Dr. N. I. Stebbins, of Clinton, followed with the next paper on "Conditions Associated with Rural Hospitals, Physicians and Nurse Problem." This paper was discussed by Drs. Jabez N. Jackson, O. B. Hall, Robert D. Haire, T. W. Adair, L. L. Smith, H. Jerard, L. H. Callaway, and others. It was the opinion of the author of the paper and those who discussed the subject that the most urgent need of the physicians and various communities in the care and proper treatment of patients, was more practical nurses and less of the high-priced graduate nurses.

Dr. Jabez N. Jackson, of Kansas City, then favored the society with a paper on "Cancers of the Female Breast and Factors Influencing the Best Surgical Results." The doctor showed by lantern slides the proper lines of incision which would most thoroughly permit the removal of the diseased cancerous structures and leave the least objectionable scar which would not interfere with the movements of the arm by cicatricial contractions.

Dr. L. J. Schofield, of Warrensburg, Councilor of the 15th District, then spoke to the members of the society on important matters of legislation, urging the physicians to lend their support in upholding scientific medicine and in safeguarding the health interests of the public. The subject brought up by the doctor was quite thoroughly discussed by a number of the physicians present and the matter of supporting the Committee on Public Health in their plan of work before the next general assembly was an important feature of the discussion.

The board of censors reported favorably on the application for membership in the Cass County Medical Society of Dr. Willard L. Veirs, of Pleasant Hill, Dr. Geo. Griffith, of Garden City, and Dr. Geo. F. Kelley, of Drexel. The report of the committee was adopted and the above named physicians were elected as members of our county organization.

The following physicians were present at the meeting: W. A. Braecklein, Higginsville; J. W. Horner, Alma; R. D. Ireland, Kansas City; E. M. Moore, Corder; W. E. Koppenbrink, Higginsville; J. W. Galbreath, Urich; N. I. Stebbins, Clinton; William C. Webb, Higginsville; Lewis Carthrae, Jr., Corder; W. S. Walker, Clinton; S. A. Poague, Clinton; J. J. Russell, Deepwater; Robert D. Haire, Clinton; T. M. McCallum, Kansas City; W. Campbell, Kansas City; F. R. Teachenor, Kansas City; Sam Roberts, Kansas City; Homer White, Kansas City; Arthur Altringer and B. A. Poorman, of Kansas City; T. F. Lockwood, of Butler; J. W. Crabtree, Clinton; T. W. Foster, Butler; R. E. Crabtree, Butler; Henry Park, Knobnoster; E. A. Heibner, Nevada; C. H. Allen, Odessa; J. Edward Burns, Kansas City; Jabez N. Jackson, Kansas City; L. J. Schofield, Warrensburg; L. H. Callaway, Nevada; O. B. Hall, Warrensburg; C. H. Allen, Odessa; J. G. Montgomery, Kansas City; C. D. Taylor, Brownington; W. G. Thompson,

Warrensburg; T. W. Adair, and B. B. Tout, Archie; L. C. Snell, Freeman; H. S. Brierly, Peculiar; A. R. Elder, Harrisonville; D. S. Long, Harrisonville; R. M. Miller, Belton; L. L. Smith, Urich; H. Jerard, Pleasant Hill; C. S. Dodd, Dayton; J. S. Triplett, and M. P. Overholser, Harrisonville; and others whose names were not obtained.

The meeting adjourned to convene some time during the middle of October with the Henry County Medical Society at Clinton.

R. D. RAMEY, M.D., President,
M. P. OVERHOLSER, M.D., Secretary.

JACKSON COUNTY MEDICAL SOCIETY

The Jackson County Medical Society held its first meeting following its summer vacation on September 18, 1923, at the Assembly Hall, Kansas City General Hospital, the president, Dr. C. B. Francisco presiding. The scientific program of the evening was upon the present status of biological therapy, by Dr. W. K. Ward, former Passed Assistant Surgeon, United States Public Health Service. He talked at length on biological therapy and brought out some instructive points along that line. The paper was discussed by Dr. Frank J. Hall.

This was the first meeting following the summer vacation and was well attended. The meetings for the past year have been very interesting, the papers have been abundant and of good character and the attendance always good which is due primarily to the character of the papers which have been presented to the Society. We are looking forward to a very interesting year and are attempting to build up the attendance. The Society meets every Tuesday evening at eight o'clock in the library rooms at the General Hospital. The Society extends to all physicians who may be in the city Tuesday evenings, a cordial welcome to attend the meetings.

CLAUDE J. HUNT, M.D., Secretary.

LAFAYETTE COUNTY MEDICAL SOCIETY

Meeting of July 10

After several unsuccessful attempts to hold meetings this spring and summer, due chiefly to weather conditions, Lafayette County Medical Society finally succeeded in meeting in Corder. Corder is not one of the regular meeting places, but the members assembled there in honor of two of their number who have grown old in the service and who are residents of Corder. Dr. Lewis Carthrae, Sr., and Dr. Edward F. Martin, the two members so honored, have practiced in Corder for many years and enjoy extensive practices there.

Notwithstanding the long distance some members had to travel because of the location of Corder, there were eighteen members present. After a very enjoyable dinner, each responded to the toastmaster's invitation and expressed himself in regard to the esteem in which these old members were held and the good such lives as theirs accomplished. The older members became reminiscent and many things of interest were brought out which, compared with the present day practice, emphasized the great progress that the science of medicine has made in the last thirty or forty years. Dr. Braecklein exhibited the minutes of the first Lafayette County Medical Society meeting and called attention to the fact that nearly all of those who were members at that time are now dead. After an hour's visiting with the two venerable honorees, the members wished them many more years of usefulness and adjourned.

The members present were: Drs. Lewis Carthrae, Sr., Lewis Carthrae, Jr., Edward F. Martin, Corder; Drs. C. T. Ryland, J. G. Cope and A. J. Chalkley,

Lexington; Dr. J. W. Horner, Alma; Dr. W. G. Harwood, Dover; Drs. F. M. Shryman and O. G. Oetting, Concordia; Drs. R. F. Mills and R. C. Schooley, Odessa; Drs. E. A. Hoefer, J. W. Burgess, W. C. Webb, Lewis Hunker, W. E. Kopenbrink, W. A. Braechlein, Higginsville.

Meeting of August 10

The Lafayette County Medical Society met in Odessa on August 10, at 5 p. m. The meeting was held at the lake and a bountiful lunch was served by the members' wives. Judging from this lunch, the wives are masters in the art of cooking and the doctors certainly enjoyed and appreciated their efforts.

At 7 o'clock, a scientific program was presented. Dr. W. W. Duke, of Kansas City, gave an excellent lecture on the subject of "Food Allergy" and everyone present felt well repaid for coming, had this been the entire program. But there were other good numbers. Dr. J. P. McCann, of Warrensburg, read a paper on the eye that showed Dr. McCann to be a student as well as a master of his subject. Dr. E. D. Twyman, of Kansas City, gave a talk on appendicitis and brought out many practical points in the handling of these cases.

At the conclusion of Dr. Twyman's talk the meeting was thrown open for general discussion and everyone present took part. Drs. Overholser and Triplett, from Cass County, were present and after joining in the discussion, invited the five counties to meet with Cass County on the second Thursday in September. The counties invited are Lafayette, Henry, Johnson, Bates and Vernon.

The Lafayette Society had invited these counties to meet with us and Johnson County responded and sent over nine members to our meeting. That is something unusual and we certainly appreciated such a good attendance from our neighbor county. Johnson County's Society is active and many societies would do well to follow their example.

The physicians present from Johnson were: Drs. Schofield, J. T. Anderson, J. L. Anderson, Patterson, McCann, Johnson, Powers, Thompson, Draper. From Cass: Drs. Triplett and Overholser. From Lafayette: Drs. Braechlein, Davis, Allen, Mills, Schoolcy, Liston, Lightner and Cope. From Kansas City: Drs. W. W. Duke and E. D. Twyman.

Before adjourning, our society passed a resolution pledging our society to help these counties in reviving interest in the county society and medical matters in general.

J. Q. COPE, M.D., Secretary.

RANDOLPH COUNTY MEDICAL SOCIETY

The Randolph County Medical Society held its regular monthly meeting in Higbee, Tuesday evening, August 14. The essayist for the evening being absent, Dr. Higbee presented two very interesting clinics. After examination of these cases there was a general discussion entered into by every member present. Following the discussion, a splendid luncheon with ice cream and home made angel cake was served at a local cafeteria.

The next meeting will be held at Moberly, in September, at the Moberly Country Club, at which time we will hold a banquet for the members and their families.

The following members were present: Drs. Clapp, Streeter, Ragan, Bazan and Dixon, of Moberly; Dr. Barnhart and Epperly, of Huntsville; Drs. Nickols, Burkhalter and Winn, of Higbee; and Dr. Binnie, of Strawn, Texas, visiting.

The Randolph County Medical Association had

one of the nicest meetings in its history September 11, in the social session held at the Country Club, Moberly. Invitations were sent to the physicians of the county and their wives, and thirty-eight responded—and were glad of it.

An elegant dinner was served at 6:30 by the Country Club chef. After dinner the company was given a most splendid program of readings, and music by Misses Martha Hill, Bertha Zimmerman and Marcella Stamm.

At the close of this program the ladies were left to spend a social period together while the doctors held a short business session.

At this time the doctors endorsed the Red Cross nutrition work which has been started in our public schools and agreed to lend any assistance needed.

They also endorsed and planned to hold a better baby show during the Farm Products Show to be held here next month. A purse of \$50 will be contributed to be distributed in prizes.

A committee consisting of Dr. C. H. Dixon, Dr. S. T. Ragan and Dr. S. P. Towles was appointed to formulate the plans and program for this contest.

Those in attendance last evening were: Dr. S. T. Ragan and wife, Dr. O. K. Megee and wife, Dr. P. C. Davis and wife, Dr. Towles and wife, Dr. M. E. Leusley and wife, Dr. F. L. McCormick and wife, Dr. J. Maddox and wife, Dr. L. O. Nickell and wife, Dr. C. B. Lawrence and wife, Dr. C. H. Dixon and wife, Dr. Bazan, Dr. R. A. Mitchell, Moberly; Dr. Barnhart and wife; Dr. Epperly and wife, Huntsville; Dr. G. M. Nichols and wife, Higbee; Dr. R. A. Woods and wife, Clark; Dr. G. W. Hawkins and wife, Dr. Fellowes and wife, Salisbury.

C. H. DIXON, M.D., Secretary.

SALINE COUNTY MEDICAL SOCIETY

The Saline County Medical Society held its regular meeting August 14, at The John Fitzgibbons Memorial Hospital, at Marshall, with twelve members and one visitor present.

Dr. G. A. Aiken, of Marshall, reported a very interesting case of hip joint disease which was very ably presented. Discussions followed by Drs. Stable, Coffman, McGuire, Bickford, Hall, Harrison and Waters.

Dr. J. R. Hall read a very interesting historical and enlightening paper, "The Limitations of the Efficiency of Therapeutic Agents," bringing in such points as the decrease of lobar type of pneumonia and the increase of other types. He also expessed his opinion as to the futility of X-ray and radium treatment of carcinoma of the cervix and the mammary gland. Discussion by Drs. Manning, McGuire, Aiken, Harrison, Howard and Waters followed.

ROBERT W. KENNEDY, M.D., Secretary.

WRIGHT-DOUGLAS COUNTY MEDICAL SOCIETY

The Wright-Douglas County Medical Society met at 1:30 p. m. Thursday, August 2, 1923, in the Masonic Hall at Ava, Mo., with the following members and visitors present: Drs. R. M. Rogers and J. A. Fuson of Mansfield; Drs. R. M. Norman and J. L. Gentry of Ava; Dr. J. R. Davis of Noble; Dr. R. A. Ryan of Norwood; Drs. E. C. Wittwer and A. C. Ames of Mountain Grove; Dr. L. L. Henson of Bradleyville; and Students Raymond Barnes and J. D. Lutton of Mountain Grove.

The meeting was called to order by the president, Dr. R. M. Norman, and the minutes of the last meeting were read and approved.

Dr. J. L. Gentry read a paper on the use of the forceps, which opened quite a general discussion of several obstetric subjects and proved very interesting.

Dr. R. M. Norman read a paper on diphtheria and reported a case of sudden and unexpected death, which brought up a discussion of cardiac paralysis as a complication of this disease, and the danger of undue exertion proving fatal.

The application for membership of Dr. L. L. Henson of Bradleyville, a member of the Lawrence-Stone County Medical Society, was received, and upon recommendation of the censors the Society voted to receive him as a member upon receipt of his transfer card from the above society.

A letter was read from the secretary of the State Medical Association asking for voluntary donations to a fund being raised, as directed by a resolution adopted at the meeting of that Association at Joplin, to be used in protecting our interests and furthering public health work, but no action was taken.

A letter from the Kansas City Clinical Society was read, inviting our members to attend their proposed clinics during the week of October 8th to 13th.

A bill was allowed to the secretary for 95 cents for postage and telephone charges.

The meeting adjourned, to meet at Mansfield, Thursday, November 1, for the regular annual meeting and election of officers.

A. C. AMES, M.D., Secretary.

BOOK REVIEWS

NON-SURGICAL DRAINAGE OF THE GALL TRACT. A Treatise Concerned With the Diagnosis and Treatment of Certain Diseases of the Biliary and Allied Systems, in Their Relation to Gastro-Enterology and General Clinical Medicine. By B. B. Vincent Lyon, A.B., M.D., Chief of Clinic, Gastro-Intestinal Department of the Jefferson Hospital. Cloth, price \$10. Pp. 640, with 185 illustrations. Philadelphia: Lea & Febiger, 1923.

The six hundred page treatise on diagnosis and treatment of diseases of the biliary and allied system in relation to gastro-enterology fully meets with the expectation of the author, whose purpose, firstly, is to offer the diagnostic and therapeutic value of non-surgical drainage of the biliary system to the surgeon and internist, and secondly, is to present a plan of systematic and practical method of studying the gastro-intestinal tract as a whole.

It is a book pregnant with ideas, rich in detail and voluminous in case histories. It is well illustrated with engravings, water colors, and graphic charts. Special emphasis is placed upon newer technique, contributed by various authors, for making a comprehensive study of the contents of the stomach, gall bladder and duodenum. The book safely can be condensed, although the repetition does not detract from its intrinsic value. It is a splendid reference work on diseases of the gastro-intestinal tract for it contains a most comprehensive bibliography. It is all that a treatise on the subject demands, for Dr. Lyon wishes to direct attention to the possibilities of the method, which opens up for treatment biliary states that heretofore were open only to surgery.

The well illustrated historical sketch, the chapters on diagnosis, both clinical and otherwise, as well as those on histology, physiology, bacteriology, and chemistry of the biliary tract deserve special merit and are well worth reviewing most carefully. Dr. Lyon is to be congratulated upon his most painstaking contribution to medicine.—A. C. C.

INJURY, RECOVERY, AND DEATH, IN RELATION TO CONDUCTIVITY AND PERMEABILITY. By W. J. V. Osterhout, Professor of Botany, Harvard University. J. B. Lippincott Company, Philadelphia, 1922.

This book represents a summarized report, with discussion, on various data which have been presented by Dr. Osterhout during the past fifteen years. The original papers have appeared in various issues of *Science*, *Journal of Biological Chemistry*, *Botanical Gazette*, *American Journal of Botany*, and other scientific periodicals. The earlier papers were published under titles relating primarily to permeability and antagonism, but during the past few years the titles have suggested the bearing of the work on the processes of life in a more general way, especially upon injury, recovery, and death. The technique employed has been an application of electrical conductivity methods to the question of permeability of tissues. Essentially, the method consists in measuring changes in resistance of a deep wad of tissue lamellae when immersed in various solutions, chiefly those characteristic of sea water. The tissue employed has been primarily fronds of a species of Devil's Apron, *Laminaria*.

The view is developed that a determination of conductivity gives a basis for measuring the vitality of living tissues. A tissue permitting the rapid entrance of ions (low resistance), in other words, exhibiting high permeability, is in process of injury, and if the high permeability continues, death must follow. Ionizable salts and other toxic substances may be divided into two general classes as follows: (1) those exhibiting a prompt diminution of electrical resistance, and (2) those which induce at the outset an increase in resistance, followed in time by a decrease. The author makes several assumptions as to the attitude of physiologists concerning the nature of injury and death which do not appear to be borne out by the literature of the subject, but then proceeds to develop an interesting theory of the method of action of the two classes of substances indicated in effecting injury and death. He postulates a series of reactions with increased permeability proceeding in the general direction of death. The mechanism postulated is a series of catenary reactions, or a catenary system, by means of which practically all processes of the organism may be accounted for. If this series of reactions is disturbed, deep seated results may accrue in the direction of increased or decreased resistance. The changes induced may, for example, be considered as the interaction of substances in the cell which do not ordinarily come in contact. The series of reactions is regarded as a reversible one, and injury or recovery may be related to the rate of formation or decomposition of the hypothetical substance to which normal resistance is related. Compounds inducing a decrease of resistance are commonly antagonized by those inducing initial increase in resistance. The author makes a strong point of the mathematical treatment of the data, and with the formulae developed he is able to predict the behavior of any tissue for which constants have been worked out. It is, perhaps, unfortunate that the author has thus far confined his work largely to one marine organism and from this alone it cannot be certain that the mechanism is invariably so simple as portrayed.

The subject is developed in six chapters and an introduction. These chapters include successively the method of investigation, the mechanism of the process of death, injury and recovery, antagonism, anesthesia, and a final discussion of conductivity and permeability.—B. M. D.

LEGAL MEDICINE AND TOXICOLOGY. By many specialists. Edited by Frederick Peterson, M.D., Manager Craig Colony for Epileptics; Walter S. Haines, M.D., late Professor of Chemistry, *Materia Medica* and Toxicology, Rush Medical College; and Ralph W. Webster, M.D., Assistant Professor of Medical Jurisprudence, Rush Medical College. Second Edition. Two octavo volumes, totaling 2,268 pages, with 334 illustrations, including 10 insets in colors. Philadelphia and London: W. B. Saunders Company. 1923. Cloth, \$20.00 net.

The first edition of this work, which appeared twenty years ago, has been one of the standard authorities on the subject. There seems every reason to think that the second edition will maintain a similar position. The book has the disadvantages inseparable from its plan, namely, unequal value of different sections, some overlapping, and lack of unity. The advantage of having each of the fifty-two sections written by authorities in their respective subjects is obvious.

The new material in this edition covers very well the changes in legal medicine in the last twenty years. The most striking of these are the legal complication of the application of radium and ultraviolet rays, industrial poisons, and the altered point of view with regard to mental disorders.

In the chapter on mental disorders, Dr. Barrett points out the increasing difference between the medical and the legal points of view, observing that the advances in psychiatry have had little influence upon the laws. He brings out very clearly the impossibility of fulfilling the legal requirement that a sharp line be drawn between "sane" and "insane," and emphasizes the fact that "insanity" and "mental disorder" are by no means synonymous terms.

The chapter on stigmata of degeneration, while of great interest would hardly be considered as important now as twenty years ago. The writer evidently considers that nothing worth referring to has been contributed to this subject since 1896.

In the section on speech disorders, the practical applications to law are presented admirably. The analysis and explanation of aphasia seem too highly hypothetical for a work of this sort.

The second volume, principally upon toxicology and other laboratory branches, appears on the whole to be much more carefully revised and modernized than the first volume. An example may be found in the section upon methyl alcohol which is treated in the present edition in a manner adequate to its increased importance.

The reviewer has found Peterson and Haines of the greatest value in preparing courses in legal medicine for medical students, and considers the new edition as the most satisfactory work on the subject.

E. T. G.

THE ANATOMY AND PHYSIOLOGY OF CAPILLARIES. By August Krogh, Ph.D., LL.D., Professor of Zoophysiology Copenhagen University. Cloth. Price, \$3. Pp. 276, with 50 illustrations. New Haven: Yale University Press, 1922.

This is a series of eleven lectures delivered at Yale University under the Silliman Foundation. The author points out that the capillaries are the essential part of the circulatory system, the veins and arteries being merely tributary. They are associated closely with the ultimate metabolic processes in the cells of the organism, processes which are of the utmost importance yet are very obscure. It is only in the last seven years that any sustained and broad studies of the capillaries have been made, and of these Professor Krogh and his co-workers have contributed a considerable proportion.

The purpose of the lectures is to review these

studies, to coordinate the results into a sort of system, and to work out lines along which progress is to be expected.

After a fascinating chapter upon the distribution of capillaries in various organs, and estimates of total areas available for tissue interchange, the evidence in favor of the independent contractility of capillaries is brought forward. The third lecture is devoted to the structure of the capillary wall, with special emphasis on the cells of Rouget, which surround the wall and furnish the contractile mechanism. These cells, which are essentially muscle cells, have been shown where examined, to have nervous connection. Lectures five, six and seven consider the reaction of capillaries to stimuli, especially mechanical, thermal, light, osmotic and chemical, including hormones. The writer warns against the simple but fallacious division of stimuli into constrictor and dilator groups.

Lecture eight analyzes certain cutaneous reactions to mechanical and other stimuli. Lectures nine and ten treat of the exchange of substances through the capillary wall. Permeability to gases, crystalloids and colloids is considered. The author does not find it necessary to assume any secretory activity by the capillary endothelium. The final lecture considers the application of the principles developed to certain processes in health and diseases.

These lectures, while they are probably the most complete in the literature from their particular point of view, are, as the author insists, rather tentative and suggestive than final. Even with this qualification, they appear to the reviewer to be of considerable importance.

E. T. G.

DIAGNOSTIC ET TRAITEMENT DES RETRECISSEMENTS DE L'ŒSOPHAGE ET DE LA TRACHÉE. Par Dr. Jean Guisez. Avec 216 figures et 2 planches en couleurs. Paris: Masson et Cie, Editeurs, 120 Boulevard Saint-Germain. VI Ed., 1923.

This book has much the same personal authority as, for example, that of Chevalier Jackson on the same subjects. The author acknowledges indebtedness to his predecessors but states that the work is largely based upon his own personal observation of some 2,500 cases, an experience extending over twenty years. This affirmation is fully confirmed by the intimate, full, convincing style. Thoroughly predominant are the usual French virtues of luminous clarity and excellent organization, with just a remote touch of the Gallic flare for things that are striking. Examples of the latter are the illustrations on pages 42 and 105, respectively, (1) "retrograde examination" of the œsophagus, *i. e.*, examination of the œsophagus by an œsophagoscope thrust through a gastroscopy wound and the cardiac orifice, and (2) a "loop-the-loop" method of dilatation of œsophageal stricture by a dilator fastened to a string passed in turn through the mouth, œsophagus, cardia, gastroscopy wound and then through the mouth again. These maneuvers, no matter how German in origin nor how discarded in practice, one suspects were recounted by the author with a certain zest.

But this is to cavil. Here advanced students will find much doubtless that is available elsewhere; but to this portion there is added the frank and well substantiated opinion of an observer and operator of great experience. Added to this portion, there are practical points and detailed personal views and clinical experience that should make the volume an acceptable companion at least to Jackson's own; and, like Jackson's own, it has a style which does not permit one to go to sleep. The book is well printed, fairly fully illustrated, but has only the briefest index.—J. D. C.

THE JOURNAL

OF THE

Missouri State Medical Association

The Official Organ of the State Association and Affiliated County Societies
Issued Monthly under direction of the Publication Committee

Volume XX

ST. LOUIS, MO., NOVEMBER, 1923.

NUMBER 11

E. J. GOODWIN, M. D., EDITOR
3529 Pine St., ST. LOUIS, Mo.

PUBLICATION COMMITTEE { W. H. BREUER, M. D., Chairman
S. P. CHILD, M. D.
M. A. BLISS, M. D.

ORIGINAL ARTICLES

THE THEORY AND PRACTICE OF ANTISEPTICS AND GERMICIDES*

MARSH PITZMAN, M.D.

ST. LOUIS

This discussion will on the one hand emphasize to practitioners the importance of a working knowledge of the scientific researches on antiseptics and germicides. On the other, it will point out the unavoidable limitations of these demonstrable facts under the acid test of actual practice. Insofar as this effort succeeds in interpreting both points of view, it will minimize the contradictions, more apparent than real, between theory and practice.

It is a common misconception, even among practitioners of medicine, that the modern world discovered antiseptics. A momentary reflection must make any educated individual realize the falsity of that claim, for neither in the present world nor in the past are known savages who did not have some crude conceptions about preserving their food, whether by drying or freezing or salting or smoking, and who did not treat their wounds by wines or balsams or even the actual cautery. But what the modern world, led by the illustrious pioneers Lister, Pasteur and Koch, did accomplish was to throw light on the old empiricism and lay a proper foundation for the rational use of antiseptics and germicides. This progress from empiricism to rationalism in our understanding of antiseptics formed the cornerstone for the modern hospital; and is therefore an absolutely essential pillar for civilization as we know it.

And yet in the face of such evidence so-called practical doctors are apt to say, "If a thing works, why bother your head about how and why it works?"

And the scientist answers, "We never really understand a proposition until we have reduced it to its elements and made these so simple that a wayfaring man though a fool *need* not err therein."

In the face of so revolutionary a change as the discovery of bacteria and their antidotes, surely no ground for wonder exists that claims were advanced and generally accepted, which the scientist of today must seriously question or even flatfootedly deny. But the tremendous mass of work done on this subject—some very good, some very bad, and the great mass indifferent—has crystallized into certain concrete rules which the effective practitioner must utilize continuously.

The most serious source of confusion in our understanding of antiseptics and germicides resides in the failure to draw a sharp distinction between the prophylaxis of infection and the treatment of infection. During a variable but always comparatively short period of time the infecting bacteria are simply on the surface of a mucous membrane or wound and then can, theoretically at least, be all killed off by the use of appropriate germicides or sporicides. Both experimentally and clinically it has been conclusively demonstrated that the earlier the germicide is used the surer we are to be able to kill off all infecting organisms. Due to the fact that all germicides and sporicides are irritant to body tissues and therefore do a certain amount of harm, during the past generation researchers have been continuously trying to discover non-irritant chemicals, which will yield equally satisfactory clinical results as the irritant germicides. Based on a broad study of the literature and on clinical observation running back over fifteen years to my hospital internship, it is my judgment that none of these enthusiastically advocated non-irritant antiseptics have been able to stand up under the comparative test of clinical practice. As bacteria are albuminous it is inconceivable to me that anyone will ever discover a non-irritant germicide or sporicide. While the following statement will be disputed by a minority my personal judgment agrees with the overwhelming majority opinion that the use of non-irritant antiseptics does not result in materially surer prophylaxis against subsequent infection than would the simple washing and flushing with water or normal saline. Both theoretically and practically it seems to be a definitely established fact that mechanical washing and

* Read at the sixty-sixth annual meeting of the Missouri State Medical Association, Joplin, May 8, 9, 10, 1923.

flushing with absolutely non-irritant fluids will minimize the incidence of subsequent infection. Therefore, the only question remaining for clinical determination is whether the use of an active germicide, eventually in traumatic wounds of a sporicide, will still further reduce the incidence of infection.

GERMICIDES AS PROPHYLACTICS AGAINST INFECTION

But now to swing from these generalizations to the concrete, let us take up first the problem of prophylaxis against ophthalmia neonatorum. In the first place there is no use in killing off the gonococci in the newborn child's eye, if subsequently the maternal gonococcus-laden secretions are going to be allowed to flow or otherwise get into the child's eye. Therefore the first procedure must be to wash off all such secretions from the child's face, before the prophylactic is instilled. Furthermore, inasmuch as secondary infections are nowadays probably at least equally as common as primary infections, it is obvious that appropriate warning should be given about the washing of hands before touching the close proximity of an infant's eyes. Crede's simple and rational suggestion was more revolutionary and of greater importance than modern physicians realize, inasmuch as it immediately reduced the incidence of this dread disease to but a small fractional part of its former occurrence. His original suggestion of a drop of 2 per cent. silver nitrate in each eye is now generally held to be unnecessarily severe, one or two drops of a one-half per cent. silver nitrate having been definitely proven to be sufficiently strong and at the same time less irritant to the delicate mucous membranes. Appropriate strengths of protargol or most of the other irritant silvers may be substituted for the one-half per cent. silver nitrate, provided their irritation and at the same time germicidal powers are not destroyed by combining them with common salt as in normal saline solution.* The present promoters of protargol have recently been guilty of this elementary mistake in their advertising literature. The non-irritant silvers, such as argyrol, collargol, colloidal silver, etc., are not the equivalents of irritant silvers because even undiluted solutions take hours of contact before they kill off the ordinary staphylococci. In the stricter sense of the words these non-irritant silvers are antiseptics (checkers of germ development) and not germicides (killers of germs) at all. While these nonirritant preparations are perfectly satisfactory provided there are no gonococci present, or provided the gonococci have all been

removed by mechanical washing, whenever gonococci are present the irritant germicidal silvers will in my judgment yield surer prophylaxis.

One of the most surprising occurrences in medicine during the past generation was that it took so long after the prophylactic power of the silver germicides against gonorrhreal conjunctivitis was established before this same regimen became widely used against the urethral gonococcus. However, since the war experiences, the use of such prophylaxis has become more widespread and more firmly established on the basis of clinical results. The prophylaxis problem being absolutely the same as listed in the preceding paragraphs, the following propositions go far toward explaining this delay: gonorrhreal urethritis is considered less serious than gonorrhreal conjunctivitis; the popular sentiment that the child, being an innocent party, must be protected, whereas the grown-up more or less deserves his or her punishment as the wages of sin; from a more scientific standpoint too long delay between the exposure and the use of the prophylactic; confusion in statistics because old gonorrhreal prostatic cases often flare up after indulgences in wine, women and song, even though the prophylactic had killed off all the new strain urethral gonococci. But such prophylaxis, established not only on a firm basis of statistics but also of simple logic, seems destined to grow in this less religious but in many ways more tolerant and humane world of today.

Another prophylactic use of the silver germicides, which is only now beginning to come into widespread usage, is to protect a normal conjunctiva or urethra following instrumentation. If all the precautions of a high-class operating room technic including rubber gloves are used such prophylaxis is not necessary. But otherwise following removal of a foreign body from the eye or lids or following a catheterization, the advice of the progressive specialists is to terminate the procedure by injecting an appropriate silver germicide. In such a condition the major opportunity and the prime responsibility accrues to the practitioner who first treats the patient, for once such an infection becomes established in the tissues the combined skill of the best specialists of the world may only be able to save a seriously damaged part of an organ, if that. Beyond noting that such occurrences are more serious and more common than practitioners realize, I will leave illustrative cases to appropriate specialists in the discussion. The modern urologists insist logically that the lubricants for catheters should be water soluble, on the ground that the paraffins are apt to form nuclei for concretions, and secondly, that our ordinary heat and chemical disinfectants fail to

*Pitzman: 1909. *Hygienische Rundschau*, Vol. xix, pp. 693-699; 1912. *Amer. Jour. Ophthalmology*, Vol. xxix, pp. 1-8.

penetrate and act through an oily layer. All experimental work known to me bears out the relative inactivity of our ordinary germicidal measures in non-water soluble lubricants.

Which brings us to the third and last subdivision of this prophylaxis problem, that is the treatment of traumatic wounds penetrating the skin.

TREATMENT OF TRAUMATIC WOUNDS

Our problem is now changed by the addition of two factors, the greater extent of the injury, and the danger of spore infection. Whereas on the surfaces of mucous membranes spores will not develop, in any traumatic wound through the skin we must consider the possibility of subsequent spore disease; specifically, tetanus and gas gangrene. As a proposition in logic, therefore, whereas an active germicide fulfills all requirements on a mucous membrane, in the prophylactic treatment of traumatic wounds an active sporicide is absolutely necessary. While this preceding statement sums up the logic of the situation beyond the cavil of a doubt, the surprising thing is that not only has this proposition not been answered by clinical reports but to date scarcely a fair start has been made. Having just made an exhaustive study of the basic experimental work and the clinical reports in the literature, it strikes me that the proponents of a sporicide have to date the better of what evidence exists. However, all surgeons of standing agree that unless a patient is in definite major shock, any macroscopic foreign bodies should be immediately removed, under fitting anesthesia if requisite, and the wound flushed with at least water or normal saline. But now whether a germicide or a sporicide should be used in addition is scientifically an open proposition. Thus, if you find one authority on the basis of logic plus experience advocating strongly the use of a sporicide, the next may just as firmly limit himself to the use of a germicide, while the next on the same basis will just as strongly object to the utilization of any chemical—which the objectors justly protest will cause further injury to the already damaged tissues. Beyond stressing the fact that to the practitioner, who first treats a wound, accrues the only possibility of preventing infection, I will limit my present advice to an endorsement of the iodine treatment of the wound surfaces. As a matter of fact, I have just finished working out in preliminary form what I consider a more logical and promising treatment of traumatic wounds, but to prevent mishaps this is now being circulated only among a few specially trained and interested surgeons for clinical test preliminary to publication.

USE OF ANTISEPTICS IN ESTABLISHED INFECTIONS

And now when we come to consider the use of antiseptics and germicides in established infections we have an entirely different proposition, both in theory and in practice. I presume the great majority of practitioners are still supremely confident that wound infections treated with antiseptics or germicides get well because these chemicals gradually kill off the attaching organisms. As a generalization this is certainly *not* true, as any open-minded individual can readily convince himself by treating a few cases under normal saline or tap-water packs. Cases so treated get on just as well as cases treated by an antisepticised pack, provided no secondary infections are introduced. And right here is the basic reason why ordinarily antiseptics should be used in packs, that is because secondary infections of already infected wounds are much more common occurrences than practitioners realize. If in dressing infected wounds you use all the precautions of a modern operating room technic including rubber gloves, the antiseptic may safely be omitted from the pack. Personally I prefer on account of its safety and power in the presence of albumins, a 20 per cent. alcohol solution for my antiseptic, but if the prohibition enthusiasts have made this too hard to get a corresponding strength of the now omnipresent "hooch" is equally satisfactory—for external application! As a matter of fact in hospital cases I generally treat infected wounds with simply a boiled water pack in order to avoid the eventual irritation of an antiseptic, and protect my own hands and the patient's wound by sound rubber gloves, or handle dressings only by a series of forceps. But even under such favorable conditions the omission of the antiseptic introduces an element of risk, as, for example, several times, under crowding of work, I have had the misfortune to introduce fresh and more serious infections into already infected wounds. These secondary infections while serious were fortunately followed by complete recovery, but the evidence in these instances of breaks in my personal technic chanced to be so overwhelming that my conscience had not the slightest shadow of a doubt under which it could hide. Another time the wriggling evidence of the previous visit of a greenbottle fly called for considerable explaining, even though it did not chance to be really serious. Hence my advice to the overwhelming majority of practitioners treating infected wounds under the ordinary conditions is—use an antiseptic in your pack, preferably alcohol.

For my prohibition friends I will state that scientifically the risk of absorption into the

lymph and blood is so infinitesimal that your patient is much more liable to get the physiologic kick of alcohols by drinking the pack or inhaling it. Of course, many other antiseptics or germicides could be substituted, but all others I have either studied or had personal experience with strike me as less safe and less fool-proof. While the risk of carbolic acid absorption or gangrene is small, still these unnecessary risks have steadily and progressively limited its use. The related cresols, including proprietary preparations, are less toxic and dangerous, but at that as a class are distinctly less fool-proof than alcohol. Formaldehyde is an excellent antiseptic but even in very dilute solution may coagulate the albumins of the wound surfaces so firmly as to cause unnecessary tissue destruction and consequently interfere with the requisite drainage. Some of the newer antiseptics of the quinine group, specifically chinosol, are excellent antiseptics, so far as now known nontoxic, and develop their full powers in contact with albuminous fluids. Their prime advantage over alcohol lies in the fact that they can be carried in tablet form, whereas their major drawback is that even in 10 per cent. and therefore very expensive solution they take over half an hour to kill off the ordinary staphylococci. The same general objections in my judgment apply to the aniline dye antiseptics, specifically neutral acriflavine, and to the new organic mercury combinations, specifically mercurochrome. None of the evidence submitted to date in favor of these newer antiseptics has impressed me personally as demonstrating either theoretical or practical advantage over the older, time-tested ones. Fact is, my whole discussion goes one step further in preferring an active germicide to any antiseptic in the prophylaxis of infection. However, the practitioners who are sufficiently open-minded and worldly-wise to use "the new drug before it ceases to perform the miraculous" may eventually establish such superiority in specific instances.

The only other germicide demanding special consideration in such a summary is bichloride of mercury (mercuric chloride). Due to the tremendous amount of experimental and clinical work done on this germicide, of which I personally have added at least to the bulk,* this has been the most important antiseptic during the passing generation. Provided we understand its limitations, this antiseptic still has the advantage of tablet form, of cheapness, and of convenience. Its prime disadvantage is that bichloride enters into chemical combination with albumins and then becomes absolutely inert even as an antiseptic, unless present

in excess of the amount used up by the albumins. Of course, mercury albuminate, even though it does not possess the slightest trace of antiseptic power, is still toxic to the human body and also possesses its specific action against the spirochete (*treponema pallidum*) of syphilis. In the customary tablets either common salt or tartaric or other organic acids are combined with the bichloride, but this combination is a delusion insofar as it does not prevent the chemical reaction between bichloride and the body albumins. It merely dissolves the resulting precipitate. Practically, this means that whereas when you first put on your bichloride pack it is actively germicidal, as soon as much wound secretion has discharged into it the pack rapidly loses all germicidal and even antiseptic powers. This everybody must have noted in dressing discharged wounds. Bichloride is readily absorbed from serous and mucous membranes, and therefore is altogether too dangerous ever to be there used in quantity or given to the patient for mouth, rectal or vaginal douches. Under extraordinary combinations of circumstances bichloride may be absorbed from the surfaces of a traumatic or discharging wound (which is the prime reason for my preference for alcohol) but so far as known it is never absorbed from a pack through the unbroken skin. For example, during my City Hospital internship I could readily demonstrate the presence of mercury in the urine of all patients on antisiphilitic treatment, whereas none of the patients with large open wounds or most extensive bichloride packs showed the slightest trace of mercury under the same test. This scientific demonstration checks with our common knowledge that bichloride as used in a pack is not absorbed into the lymph circulation except under most unusual circumstances. My proof that the external application of the bichloride of mercury does not directly influence the infection within the tissues might be summed up therefore: that bichloride is not absorbed; that if it were absorbed it would have to be present in excess of 1-10,000 of the blood serum in order to exert the slightest trace of antiseptic effect; that if it were absorbed in any degree even approaching such quantity it would kill any patient forthwith.

RATIONALE OF REST AND OF DRAINAGE

Now if our infected patients do not get well because we kill off the bacteria with our antiseptics, why do they get well under such treatment? The answer is, sometimes they don't! In final analysis the outcome depends upon two factors, the resistance of the individual and the virulence of the infecting organism. Over these two factors we surgeons obviously

*Pitzman: 1910. Jour. Amer. Med. Ass'n. Vol. LV, pp. 308-309. Jour. Mo. Med. Ass'n, Vol. VII, pp. 160-163.

have no control, hence there will always be a certain predetermined and unavoidable mortality in such cases. But there are other factors over which we have control and which unfortunately for all concerned are not properly understood and evaluated by the practitioner of today. In spite of the knowledge of the ancient world—in spite of such men as Hilton in his classic on rest and pain—in spite of all Ochsner and others in the modern world can say and do—practitioners do not realize the importance of absolute rest. The simple rational explanation of the necessity for rest in serious infections is that the more you move or manipulate an inflamed part, the more lymph and consequently toxins are thrown into the general circulation. The great danger of manipulation or movement resides in overwhelming the body with toxins before the body has been allowed time to develop its antibodies. Whereas in a trivial infection all sorts of improper manipulations may not be followed by serious consequences, in any virulent infections of the hand, for example, the whole arm should be put up in a liberal moist pack, with occlusive covering, and not even be disturbed for a change of dressings for at least 48 hours. Even then in very serious infections a careful dressing with particular care to avoid movement of the part may be followed by a chill and the necessity for another 48 hours or longer period of absolute rest. Irrespective as to whether or not an antiseptic is added to the moist pack, it is ordinarily advisable to prevent skin irritation, eventually infection, by the use of some bland salve of the zinc oxide order. If practitioners could only be convinced that their externally applied antiseptics have no direct effect on the infection within the tissues, the proper understanding of this theoretic proposition would throw emphasis in the treatment of serious acute infections where it really belongs—that is, on absolute rest.

Under such treatment a large majority of even serious infections will subside without abscess formation. But when abscesses do form, if these are allowed sufficient time to develop the creamy "laudable" pus of the old-time surgeon, they can then be opened without danger of spreading the infection. On the question of exactly when an abscess should be opened there exists a marked difference of opinion among surgeons, but in general more and more of the leaders tend nowadays to wait longer for definite and unquestionable localization before incising (unless there chance to be some peculiar anatomic reason for early incision, as, for example, urinary infiltration, ischio-rectal abscess, early osteomyelitis, infections in the tendon sheaths, etc.). As a matter of fact abscesses outside of the deep fascia rarely require an incision, but

those under the deep fascia will spread widely and the eventual drainage, if left to break through natural lines of lesser resistance, will ordinarily be totally inefficient. Therefore such abscesses should be given a properly chosen line of lesser resistance via an incision. Of course, if the abscess arises at great depth or under exceptionally tough layers, as in the palm, the diagnosis may have to be based on tenderness to pressure rather than the customary fluctuation. But even in such cases the rule should be to allow rather too much than too little time for ripening. In further support of this argument not to incise before frank pus has formed, the general custom of not manipulating or incising erysipelatous areas might fittingly be cited. In spite of the obvious presence of sero-pus in these infected areas, both theory and clinical experience have taught surgeons to treat such cases exclusively by rest, unless frank pus collections form as a complication. If now you can persuade yourself to follow this well-endorsed method of allowing time for immunity to form and abscesses to ripen, the remaining impelling motive for the constant dressing and manipulation of infected parts fades into very thin air.

The simplest and most logical explanation as to why incisions help abscesses to get well is because the toxin-laden discharge escapes into the dressing instead of being absorbed into the circulation. Some abscesses will not get well unless they are opened and kept open at the lowest gravity point, whereas others heal kindly without any regard being paid to the gravity factor. This difference is accounted for by the anatomic fact that in most regions of the body, when properly incised and drained, all of the pus will be continuously discharged into the dressings, whereas in a few regions this is not true. For example, wherever in the body we encounter a condition of retention with overflow, as in improperly drained empyemas of the pleural cavity, in joint wounds, and in certain massive traumatic wounds, such wounds notoriously will not heal even though the drainage is kept up during months and months. The simplest answer in an improperly drained pleural empyema is to establish efficient gravity drainage, which will continuously and completely empty the pleural cavity so as to do away with all retention. Then the fever will ordinarily subside immediately and the heretofore resistant wound heal kindly. But in such regions where for anatomic reasons proper gravity drainage cannot be instituted we can use the alternate method of washing the secretions out of the wound continuously. If this washing is literally kept up continuously night and day, we are obviously accomplishing all that gravity drainage could do and will therefore achieve the same result.

As such a regimen is practically impossible to carry out, the enthusiasts for such complicated procedures generally add some antiseptic solution to their irrigations, which allows limited intervals of rest to the patient and attendants. While the rationale of such methods is in my judgment widely misunderstood, and while on account of their complexity they will never be widely used, still in unavoidable retention-with-overflow wounds these methods will yield highly satisfactory results where all other methods fail.

And now some of you are leaning back and saying to yourselves, "While this discussion of traumatic infections does not sound so unreasonable, come, how about such common things as gonorrhreal urethritis or conjunctivitis, for example? In such cases the antiseptic surely kills off all the gonococci—eventually." While that has been for a generation and still is today the belief of the overwhelming majority of practitioners and specialists, my advice is not to be too cocksure about the why and the how of your clinical results*. As food for thought let me call attention to the fact that the literature on gonorrhea generally recognizes the same two factors we accepted in traumatic infections, to-wit, the strain of the gonococcus and the resistance of the individual. By stressing the importance of the continuous flushing of the toxins laden discharge from the surface of the mucous membrane and paying special regard to the factor of drainage, I simply want to report now as a matter of public record that I was able to get unexcelable clinical results in all of the eight acute gonorrhreal urethritis patients, who had virulent first infections and consulted me immediately—and that this result was accomplished absolutely without the use of any antiseptic or germicide. At present the specialists will not publish my detailed report, giving as a reason that it may be incorrect. Which strikes me as hypercritical, for since when and by whom is medical literature censored and its final truth guaranteed? No, that is an excuse, whereas the underlying reason seems to be that the proposition is unpopular with editors, who further fear it will be misunderstood by the rank and file of practitioners. But in time this report will be published in full detail and eventually researchers will test out the proposition open-mindedly and honestly in the clinic. If my claim that antiseptics and germicides are not an indispensable part of the treatment of acute mucous membrane infections should then be sustained, we will have advanced our knowledge of this problem to the status we have already reached in regard to traumatic infections. And perchance this

better understanding of theory, when once it has become diffused among practitioners, will eventually cause a definite improvement in the treatment of infections of the mucous membranes.

SUMMARY

- Confusion results from the failure to draw a sharp distinction between the prophylaxis of infections and the treatment of infection.

- The power of germicides as prophylactics against subsequent infection is (a) almost unanimously accepted in regard to the conjunctiva; (b) less firmly established in regard to the urethra; (c) distinctly doubtful in regard to traumatic wounds through the skin.

- Except by preventing secondary infections of already infected wounds, antiseptics and germicides have ordinarily no influence on the course of a surgical infection.

- It is scientifically doubtful as to whether antiseptics or germicides are an indispensable element in the proper treatment of established infections of the mucous membranes.

Wall Building.

DISCUSSION

DR. WARREN R. RAINY, St. Louis: I did not hear the first part of the paper, but I want to bring up two or three particular points with reference to practice, particularly illustrating some cases I have seen in the St. Louis City Hospital recently.

We had a man brought in with a swelling of the arm. The fingers were cyanotic and he was delirious. He gave a history of having a slight infection in the back of the hand. He had made a hot pack of Sloan's liniment for three days. The result was he had complete necrosis of the skin and subcutaneous tissue in large blotches down to the fascia. We attempted to incise through this necrotic area and allow the edema to pass off, but there were even areas of necrosis in the underlying muscle. The arm was swollen to triple its normal size.

We have seen the same thing where iodine has been used for preliminary treatment of a wound over a large area and a hot pack on top of that. On top of the hot iodine it will actually produce necrosis in some conditions.

I want to bring out a point in the use of Dakin's solution. I have seen it used as a hot pack. In the first place, if it is heated the chemical composition is broken down and your chlorine is given off. In the second place, Dakin's has no place in the treatment of a cut on the hand with streptococcus infection. Dakin's is made primarily for the inside of a wound where the skin is open. Where you have lymphangitis and use Dakin's solution, within two or three days your whole skin area undergoes a marked irritation. Wherever there is occasion to use a hot pack I know of nothing that is better than hot water.

THE WASSERMANN REACTION AND THE DIAGNOSIS OF SYPHILIS*

CHARLES C. DENNIE, M. D.

KANSAS CITY, MO.

My talk this evening will not be upon the technique of the Wassermann reaction or

*Pitzman: 1914. Jour. Amer. Med. Ass'n, Vol. LXII, pp. 2030-2031.

*Read at the sixty-sixth annual meeting, Missouri State Medical Association, Joplin, May 8, 9, 10, 1923.

upon the errors which creep into its performance, but upon the mistakes that are committed in its interpretation.

In order to comprehend the relation of the Wassermann to the diagnosis of syphilis it is necessary to review briefly the pathology of that disease.

The motile organisms gain entrance to the deeper layers of the mucous membrane through a disturbance of the upper layers and come to rest in the lymphatic spaces of the prickle cell layer. At first they cause no reaction whatever but merely devote their activities to propagation. In from a few days to a few weeks they have created enough disturbance to call out their first and most powerful enemy the small lymphocyte. The treponemata then move outwards followed by the lymphocyte, and the second line of defense, the plasma cell, makes its appearance. There now appears the typical chancre. The blood vessels in the neighborhood of the primary lesion show a marked peri and endoarteritis, a finding that is constant and characteristic in all forms of somatic syphilis.

A few of the spirochetae may now gain entrance to the blood stream and be deposited in the out of the way places of the body, but the great mass of them strike for the nearest lymphatic glands where the same scene is enacted that took place in the chancre; finally the large mass of the treponemata gain entrance to the blood stream, although they have met resistance by the lymphatics at every step.

The first eruption of syphilis now makes its appearance, namely, the roseola or macular eruption, which in all probability is not due to the growth of these organisms in the skin but is a proteid or anaphylactic reaction due to destruction en masse of these bodies by the raised immunity of the host and the liberation of large amounts of endotoxins. In proof of this the spirochetae of syphilis have never been definitely demonstrated in the macule.¹ A few of these organisms which have escaped destruction burrow into the deeper tissues of the body, the walls of blood vessels, the meninges and substance of the brain and spinal cord, and into the prickle cell layer of the skin where again they repeat their former activities, especially in the last named tissue.

The papular eruption now makes its appearance. These lesions are due to the direct action of the treponemata and can so be demonstrated by the dark field illuminator and the silver impregnation method. Again the immunity of the body is raised until a comparatively few of the organisms remain and these in the more inaccessible portions of the

body. Here they exist in fluctuating numbers over a long period of time, the host and the parasite often striking up a nice balance. At any time this balance may be disturbed by other disease—old age, or ill advised treatment—thus disturbing this equilibrium and allowing the specific organisms to gain the ascendancy one more.

Thus we arrive at the definite conclusion that the course of syphilis both clinically and pathologically is a fluctuating process with peaks of activity and depression.

There are three factors that must always be kept in mind:

1. The presence of a positive Wassermann or the presence of syphilis in a patient does not produce an immunity against any other disease in that individual. The patient may be suffering from a disease which is in no way connected with his syphilis, although syphilis is often blamed for it.

2. The presence of a negative Wassermann in the blood or cerebrospinal fluid or both, certainly does not definitely discard the diagnosis of syphilis in a patient with or without the clinical symptoms of this disease.

3. The presence of a persistent positive Wassermann in spite of all treatment certainly does not mean that the patient will end his days in an insane asylum, or fill an untimely grave, because of uncontrollable somatic involvement.

We would divide syphilis into four phases:

1. The stage of invasion in which the treponemata are traveling from the site of original infection to the nearest important lymph glands. During this time these organisms are increasing in number and activity but are in a large measure controlled by the lymphatic system. It is at this stage that we most consistently secure a negative Wassermann. Therefore, other means must be used in order to make a positive diagnosis of syphilis. The chancre itself has definite diagnostic signs which must always be carefully considered. The demonstration of the treponemata pallidae in a sore by the use of dark field illuminator is absolute proof of an early syphilitic involvement. If we can educate the medical profession and the public not to use pastes, powders, antiseptic washes, ointments and acids on such sores (any one of which will cause the disappearance of the specific organisms in the lesions, and will in no way benefit the patient), we will have removed one of the greatest handicaps to the early diagnosis of syphilis.

2. The second phase is that stage in which great numbers of treponemata are released from the lymphatic system and gain entrance into the blood stream, whence they are car-

¹. Dennie: Journal Cutaneous Diseases, including Syphilis, July, 1914.

ried to all parts of the body and there continue to multiply; this period may last from a few weeks to some years. During this time the clinical evidence of syphilis is as a rule most abundant and the Wassermann reaction is 100 per cent. positive and therefore of least diagnostic value.

3. The third phase represents that stage in which there is a diminution both in the numbers and activity of the syphilitic organisms. This might also be known as the phase of specialization, as it is at this time that special manifestations show themselves. It is here that the Wassermann reaction begins to fail us, and rightly so. The mass action of the treponema pallida is over and the height of syphilitic antibody production has long since passed. Scattered small colonies of these organisms now attack special tissues. It is conceivable that only one colony at a time may exist. Strange as it may seem these organisms limit their attacks to the middle coats of the largest blood vessels, and to the middle coat and perivascular lymph spaces of the smaller ones. In the central nervous system certain nerve cells are also involved; in fact, in many cases only one artery may be affected by a single colony, with most disastrous results, as, for instance, the development of diplopia and its concomitant signs, with no other manifestations. It is certainly reasonable to suppose that a single colony would not manufacture enough syphilitic antibodies to produce a positive Wassermann either in the blood or cerebrospinal fluid, and yet the patient would certainly have syphilis. One could conceive how a few more colonies could be propagated from this single focus, during a period of years and never produce a positive Wassermann.

Somatic syphilis in this phase is essentially a syphilis of the blood vessels in which the middle coat is affected first, followed by a compensatory endarteritis and an accompanying periarteritis which closes the vessels off gradually but inexorably, thus causing slow starvation and more or less rapid necrosis of the dependent tissue.

Thus gummas are formed. The size of the vessel involved often determines the size of the lesion produced. A very small number of organisms working in an advantageous place in a fair sized vessel can produce a great amount of tissue destruction with a minimum amount of antibodies and consequently a negative Wassermann. Therefore, the size of a late syphilitic lesion is not at all indicative of the degree of the positiveness of the Wassermann. Some of the largest and most hideous lesions could well be produced in a Wassermann negative patient.

After this explanation it is easy to see why we should secure such a large number of negative Wassermanns in the third phase of lues and therefore we should not unjustly criticise the Wassermann reaction but should recognize its limitations and depend upon our diagnostic ability to arrive at a conclusion.

4. The fourth phase represents that stage of syphilis in which the body is attempting to repair the ravages of the disease which is no longer active. The connective tissue which has been laid down in the wasted areas has contracted or is contracting. To this group belong old tabetics, spastic paraplegias, progressive muscular atrophies, paretics in the last stages. It is therefore reasonable to suppose that a large number of these will be either negative or only mildly positive to the Wassermann reaction. It is also reasonable to suppose that these patients will as a rule react badly to active treatment. This in fact is the case.

We still hear a great deal concerning the provocative Wassermann. There is a grave doubt as to the possibility of producing this phenomena. Personally I do not think it can be done. It is fairly well established that immune bodies, when they exist, are fairly well distributed and are not held in reserve in certain portions of the body; certainly the administration of arsphenamine would not produce immediate immune bodies or call them from hiding. On the other hand it is conceivable that there might be such a small number of spirochetae in the host that they would not produce immune bodies in sufficient numbers to produce a positive Wassermann, but untimely stimulation with ill-advised treatment might make them increase in number, thus producing a positive sera. This is in fact the phenomena that probably takes place. We have observed in our clinic at Mercy Hospital that a child who had a negative one or two plus Wassermann not infrequently has a four plus after one course of treatment; what the ultimate cause of the syphilis in these children will be we are unable to state at this time. The examination of the cerebrospinal fluid of these patients will often clear up the point in question.

THE CEREBROSPINAL FLUID

The cerebrospinal fluid should be examined in all syphilitic patients; but once having secured the fluid in all justice to the patient and the physician all the known reliable tests should be made. The cell count, globulin and gold chloride tests are as important and many times more important than the Wassermann reaction.

The cell count and globulin tests are always

indicative of the extent of involvement and activity of the disease.

Cerebrospinal fluid can always be divided into groups:

(a) Where the meninges or parenchyma of the brain and spinal cord are widely involved; all the tests are strongly positive.

(b) Widespread involvement of the vascular system of the brain and cord all tests are positive.

(c) Limited involvement of a few or only one blood vessel in the brain and cord the findings are meager, or even negative. The gold and globulin are present, the Wassermann and cell count negative.

(d) Old involvement in which the wreck of the central nervous system has been left behind; findings meager or negative.

(e) Positive Wassermann with no other findings in the cerebrospinal fluid in cases of old syphilis of the somatic system who have carried a positive blood Wassermann for years. In these cases it is entirely reasonable to suppose that the positive Wassermann antibodies have filtered through the meninges into the cerebrospinal fluid. These individuals show no signs or symptoms of central nervous system syphilis.

CONCLUSIONS

- That syphilis is a fluctuating disease, therefore the Wassermann must also fluctuate, even to the point of negativity in a syphilitic patient. This fluctuation does not take place in a matter of days but in months or even years.

- That it is right and proper that we should secure a large per cent. of negative Wassermanns in the third and fourth phases of syphilis because it is the rule for there to be such a small number of organisms that they would not produce demonstrable antibodies.

- That a very small colony of spirochatae located in an important vessel, or in a vessel supplying an important part, may produce great havoc and yet not produce enough antibodies to be demonstrable.

- That a negative Wassermann in either the blood or cerebrospinal fluid, or both, does not discard the diagnosis of syphilis.

- That it is the point of wisdom to give the patient a thorough physical examination and to make the diagnosis from known observations and clean cut mental process of deduction.

810 Rialto Building.

DISCUSSION

DR. G. WILSE ROBINSON, Kansas City: I want to congratulate Dr. Dennie on his paper.

In the first place, the universal distribution of syphilis is not fully appreciated. A great many pa-

tients come under my observation and I suggest the possibility of syphilis and the physician says, "It is impossible!" It is not impossible for any man, woman or child from any community to have syphilis. That is the first point I want to impress because of the many instances in which even when the doctor says it is impossible, we do find syphilis.

The second point I want to make is this: the very great importance of an early diagnosis in syphilis, especially syphilis of the nervous system. So many cases come under my observation with advanced tabes, or other nerve lesions of syphilis, in which a diagnosis of syphilis has never been made, in many instances because a Wassermann has been done and proved to be negative. That is in too many instances accepted by the doctor as conclusive proof of the absence of syphilis.

At least one-third of the cases of neuro-syphilis under my observation give an absolutely negative Wassermann of the blood. In most of the cases we find positive Wassermann in the cerebral fluid; and in some cases this even is absent.

The importance of making an early diagnosis of syphilis cannot be overestimated, because syphilis of the nervous system must be treated early if we expect favorable results—if we expect to get results at all satisfactory to the patient and to the physician. Unless they are treated before it has advanced into degeneration of the central nervous system we cannot expect to restore the destroyed and degenerated nerve elements. We can not get the good clinical results we hope to get.

DR. DENNIE has also emphasized the necessity of a thorough physical examination. I consider a Wassermann reaction as one of the least evidences of the presence or absence of syphilis, be it either positive or negative. Even though it be positive, it only suggests the presence of syphilis. But a thorough physical examination of the patient—a thorough neuro examination—is very important, and I consider clinical signs in neuro syphilis of more importance than serological findings.

DR. DENNIE, closing: Two common mistakes are made in the diagnosis of syphilis. The absolute dependence upon the Wassermann reaction in the diagnosis of early syphilis and of late syphilis. In the former case the diagnosis should be made by (a) the employment of the dark field illuminator, (b) the accurate observation of clinical signs. In the latter event since a considerable per cent. of late syphilites bear negative sera, no regard should be paid to this reaction if there are positive signs and symptoms of syphilis. Furthermore, it is a waste of time and energy to perfect more delicate tests for syphilis since the pathology of this disease precludes such possibilities.

ENUCLEATION OF THE EYE-BALL*

J. ELLIS JENNINGS, M.D., F.A.C.S.

ST. LOUIS

In this industrial age with elaborate machinery revolving in every factory injuries to the eye-ball are of daily occurrence. Often these injuries are so serious that we are called upon to consider the advisability of enucleation. The most dreaded complication of wounds of the eye-ball is sympathetic ophthalmia and if the wound involves the ciliary region this danger is greatly increased. All authorities agree in believing that the cause of

*Read at the sixty-sixth annual meeting, Missouri State Medical Association, Joplin, May 8, 9, 10, 1923.

sympathetic inflammation is the introduction of micro-organisms into the eye at the time of the injury. By what means these germs make their way from the injured eye to the other and there set up an inflammation which is usually more disastrous than that of the injured eye, is unknown. The greatest difficulty lies in the uncertainty of its development. One eye will tolerate the presence of a foreign body for years and give no sign, while another, seemingly less severely injured, may set up a sympathetic inflammation in from three to six weeks. In deciding when to advise enucleation the surgeon is guided by the following rules modified from de Schweinitz:

1. An eye so badly injured that the sight is destroyed.
2. An eye containing a foreign body which it is impossible to extract, and in which severe iritis develops even if sight is not destroyed.
3. An eye with a penetrating wound of the ciliary body, complicated by severe inflammation of the iris or ciliary body even if sight is not destroyed.
4. An eye which is atrophied, shrunken and sightless, with recurring attacks of tenderness on pressure in the ciliary region.
5. An eye the sight of which has been destroyed in which there is sympathetic irritation or inflammation in the other eye. An exception to the rule is if sympathetic inflammation has begun enucleation must not be performed if there is any vision in the exciting eye which in the end may prove to be the more useful organ.

With these rules to guide us, it would seem possible to come to a quick decision as to the best course to follow. But in practice it will be found that many cases seem to be exceptions to the rule. The patient may be resigned to the loss of sight in the injured eye, but protests against, or absolutely refuses enucleation. Having seen so many badly fitting artificial eyes, he feels that he will be disfigured for life, and his chances for employment greatly lessened. Under these circumstances the surgeon is often persuaded against his better judgment to attempt to save an eye by careful nursing and treatment. In many cases, even although the offending foreign body is removed promptly, these efforts are futile and the eye-ball gradually atrophies, becomes soft and blind. From a rather extensive experience I have come to the conclusion that it is unwise to try to save a badly injured eye. The risks are too great when we consider the insidious onset of sympathetic ophthalmitis, and that when once it begins, is rarely checked.

When, however, an enucleation has been decided upon and the patient gives his consent, what sort of an operation are you going to do? Since the days of Pasteur and Lister

surgery has made great strides, but you would not think so if you have examined the sockets of many enucleated eyes. Anyone can remove an eye-ball after the obsolete methods of Bonnet and Arlt described at length in all textbooks. In both of these operations the main idea seems to be to get the eye-ball out as quickly as possible without taking into consideration the future cosmetic appearance of the patient. The recti muscles are cut off close to the globe, and allowed to retract into the posterior part of the orbit and after the removal of the eye, the conjunctiva is closed with a "tobacco-pouch" suture. Often some of the conjunctiva is needlessly sacrificed, so that the end results of such a bungling operation is an immovable stump, and a contracted socket with troublesome bands of adhesions. Under such conditions only a very small artificial eye can be worn and it has a fixed and glassy stare. The purpose of this paper is to call your attention to a more modern operation which assures the patient a large socket, a movable stump, and an artificial eye that is difficult to detect. It is a very simple operation which anyone with modest surgical skill can do if he is not in a hurry, for it requires a little more time than the cruder methods.

Operation. The instruments required are a stop speculum, fixation forceps, a strabismus hook, a pair of small scissors to cut the conjunctiva and muscles, and a pair of strong curved enucleation scissors to cut the optic nerve. You will also need several needles threaded with 00 cat-gut for the sutures. Silk thread sutures are inferior to cat-gut because some of them get buried in the tissues and are difficult to remove. Before the operation it is a good plan to instill several drops of a 1-1,000 solution of adrenalin to lessen hemorrhage. When the patient is fully etherized, a stop speculum is inserted to hold the lids apart, the conjunctiva is grasped with forceps, and divided with scissors in a circle as close as possible to the margin of the cornea. The conjunctiva is now undermined and loosened in all directions as far back as possible, more by blunt dissection than by cutting. The tendon of the superior rectus muscle is next lifted on a strabismus hook, a needle with cat-gut is passed under it and tied and then the tendon is divided close to the eye-ball, leaving the muscle fastened to a long strand of cat-gut. The internal rectus, the inferior rectus, and the external rectus are picked up in turn and tied in the same manner. In tying the muscles, care must be taken to place the sutures far enough back so that they do not slip off when the tendon is cut. Before dividing the optic nerve the strabismus hook is made to sweep around in all directions to break up any adhesions. Pressure backwards on the speculum

will cause the eye-ball to bulge forward, then holding it steady with forceps, the enucleation scissors are passed back hugging the eye-ball until the optic nerve is reached, when the blades are opened and the optic nerve severed. The smart hemorrhage which follows the removal of the eye is soon checked by a hot compress of gauze. The next step is to draw the superior and inferior recti muscles forward and tie them together. The internal and external recti are brought forward and tied in the same manner. The operation is completed by bringing the conjunctiva together from above and below and inserting three or four vertical sutures. Both eyes are kept bandaged for 24 hours. If healing takes place without complications, an artificial eye may be inserted in two weeks. A "reformed eye," which consists of a double shell with rounded edges, is to be preferred as it fills up the socket and moves with the other eye. The artificial eye should be removed at night, washed with a little alcohol and water and inserted the next morning.

You will observe that there is nothing complicated about this operation and all that is required is a little more time to suture the tendons. The really important point to remember is to save every shred of conjunctiva, for you will need it all if you are to have a large socket. In closing the conjunctival wound, be careful to place the vertical sutures close to the edge, for if the sutures are placed too far from the margin they will draw more conjunctiva into the wound than can be spared and so tend to narrow the socket. For the same reason never use a "tobacco pouch" suture, as it draws too much conjunctiva from the temporal and nasal sides, just where it is most needed, and when healing takes place it will be found that tension bands prevent the wearing of a full-sized artificial eye.

In conclusion I would ask you to be careful not to enucleate the wrong eye. It has been done. When I was a student in Paris I visited Prof. Panas' clinic just as he was about to enucleate an eye-ball. There was a large group of spectators gathered about the operating table and I noticed that the eye not being operated upon was bandaged. When I enquired the reason Prof. Panas said "that before placing the patient under ether, it was his custom to bandage the good eye, so that when the unconscious patient was brought into the room and the operating table was turned in various directions in order to get a good light, there would be no possibility of his removing the wrong eye."

807 Carleton Bldg.

DISCUSSION

DR. WM. F. HARDY, St. Louis: The war taught us a great many lessons about injured eyes and one was that the eye can stand a great deal of trauma

and harbor a foreign body for a long time without harm to the fellow eye. Literally thousands of ex-soldiers in Europe are carrying about in their eyes fragments ranging from iron, copper and steel, to wood, glass and stone without having caused injury to their other eye. However, in civilian practice, it is not a good rule to turn a patient loose with a foreign body in his eye. I think the point should be stressed that we must not be precipitate in our action in removing an injured eye, but that it be given every chance. It may with safety be observed for two weeks unless it is obviously beyond hope or unless infection has developed. Sympathetic ophthalmia as a rule does not start before four to six weeks.

There are several points I thought Dr. Jennings would mention which he did not. One was the question of evisceration. It is the simplest procedure possible in the treatment of an injured eye or one that needs removal. It consists in cutting off the cornea and scooping out the contents of the eye. The one care is that every particle of uveal tissue must be removed. If this is done there is very scant chance of sympathetic ophthalmia developing. The procedure, furthermore, gives us an excellent movable stump.

Some men are unalterably opposed to evisceration. I think it can be done in the majority of cases without danger whatsoever. There are two instances in which evisceration should not be done under any circumstances. One is intraocular tumor where all of the globe and as much of the nerve as possible should be removed, and the other is where there is danger or fear of sympathetic ophthalmia. There is a chance that in doing an ordinary enucleation in a case of panophthalmitis that the infection will be carried back to the meninges and death result. It is a well-known fact that in panophthalmitis the uveal pigment is destroyed by the invading micro-organisms and there is little danger of sympathetic ophthalmia developing. In such cases an evisceration should have preference over enucleation.

LYMPHOSARCOMATA AND OTHER GLANDULAR ENLARGEMENTS OF THE NECK: THEIR RADIATION TREATMENT*

E. H. SKINNER, M.D.

KANSAS CITY, MO.

There are several reasons for this presentation.

1. Glandular enlargements of the neck are of frequent occurrence.
2. They are difficult to differentiate and are the sporting grounds of pathological discussion.
3. They are unfavorable surgical situations.
4. They are favorably influenced by radiation in dosage of wide variation.
5. They are symptomatically cured, progressively recede and remain quiescent or fail to recur for longer periods under radiation therapy than under surgical treatment alone.

1. Glandular tumors of the neck may be: lymphosarcomata, Hodgkin's disease, lymphatic leukemia, pseudo-leukemia, chloroma, Banti's disease, tuberculous, acute and chronic infections, adenopathy and carcinomata, primary or metastatic.

*Read at the Sixty-Sixth Annual Meeting, Missouri State Medical Association, Joplin, May 8, 9, 10, 1923.

2. Differential diagnosis of the chronic slow growing tumors furnishes a most glorious speculative field. The tuberculous glands of children, the metastatic carcinomata and the inflammatory enlargements do not offer so much difficulty inasmuch as they possess more classical characteristics.

The slow-growing non-inflammatory painless glandular mass of density, smoothness and seeming innocence offers speculation to the clinician and pathologist alike. One has only to attempt to make headway in the maze of pathologic discussion in Ewing's "Neoplastic Diseases," to appreciate the lack of pathologic agreement.

A study of the literary background discovered a most simple and satisfying description of lymphosarcoma by Sternberg in 1903. "Lymphosarcoma is a tumor formation starting in a group of lymph nodes and spreading thence to neighboring nodes or follicles. It spreads from region to region without ever exhibiting such general lymphoid involvement as leukemia or pseudoleukemia. Sooner or later it invades the capsule and extends into the surrounding tissue. Metastases differ from those of ordinary neoplasms in that the intervening lymphoid tissues are affected. True metastases, which can be explained only through transfer by way of the blood stream, are rare and usually isolated. Blood vessels are seldom invaded by lymphosarcoma being usually only surrounded and narrowed. The commonest sites of origin are the lymph nodes of the neck, mediastinum, mesenteric and retro-peritoneal regions, less frequently the inguinal and axillary nodes. The affected groups form nodular uneven masses well limited in the beginning but later diffusely permeating the surroundings. They are mostly hard, grayish-white, and show a homogeneous cut surface. In general, when a hollow organ is invaded, the growth tends to form a sleeve-like mass about it usually, however, causing no obstruction but on the contrary tending to widen the lumen."

This description of Sternberg seems to fit the cases of lymphosarcomata as they have been presented to me. From this point through the pathologic panorama of Hodgkin's disease, the leukemias, etc., we are desperately disappointed in clinical exactness or pathologic certainty. Even eminent observers report successive changes in the career of a lymphosarcoma into lymphatic leukemia and thence to Hodgkin's disease.

It is just this heart-breaking failure of agreement among pathologists which provides a reason for radical radiation therapy as an empirical measure of practical value. In other words, let us offer our patients the possibility

of symptomatic relief even though the minute details of the diagnosis are not complete.

3. The surgical situation is unfavorable with the bold, the careful or the inefficient surgeon. Recurrence is the rule and this recurrence is almost immediate. The surgeon cannot be blamed in the least. Neither does extensiveness of the surgical attack nor the method preclude recurrence. Isolated reports of successful surgical results are admitted but they fail of frequent repetition or general distribution.

The surgeon cannot cut out what he does not feel or see or suspect. Surgical ablation of any lesion must be beyond tumor limits and chains of lymphatic glands are difficult to eradicate completely.

4. Radiation therapy does influence the glandular enlargements under discussion. The radiation may be by X-ray or radium. The dosage of these two agents has been of wide variation among many radiologists and of progressively increasing intensity by the same individual. The value of any therapy becomes more universal as its flexibility of dosage and method increases.

In my own cases, which are the stimulus for this report, the technique varies from the old gas tube to the Coolidge tube, from filtration of 1 mm. of aluminum plus sole leather to .5 mm. of copper; from questionable small voltage to 140 kilovolts. It includes radium from the amounts of 25 mg. to 200 mg. and this from surface to distance application. It has always been an ambition to irradiate to the limits of our possessions and knowledge.

It is a chronological paradox that the cases treated with the earliest and seemingly inadequate dosage are the longest free from recurrence. We have three lymphosarcomata well for 9, 8 and 7 years.

There are 25 cases as a clinical frame-work of this argument. Most of them have been treated since the war and are therefore within a three-year period. Many of them have had surgical attention. None of these were acknowledged carcinomatous. One known case is dead. Two are lost. The majority have been remarkable exhibits of the ability of radiation therapy to knock down or eradicate glandular masses in the neck.

There seems no reason to relate the intimate technique of the gradually increasing dosage as the years provided better apparatus and increasing dosage. It has always seemed that the present was better than the past, and we may reasonably assume that the future will be better than the present. There is a gradual downward curve in the amount of time necessary to complete the treatment and a lessening of the number of periodic treatments which is

balanced by the upward curve of the efficient dosage.

The principles of the treatment appear to align themselves as follows:

1. Any glandular tumor mass in the neck of unknown origin (this eliminates tuberculosis, inflammation and carcinoma may be favorably influenced by radiation therapy.

2. The results will probably surpass surgery.

3. Microscopical sections may not definitely determine the nature of the growth to the satisfaction of all pathologists.

4. Radium seems more rapidly effective in the superficial glands than the X-ray. This would imply a more efficient gamma radiation at a near source by radium.

5. The deeper the lesion is the more demand there is for X-ray.

6. Recurrences demand a repeated dosage or a change from radium to X-ray or vice versa.

7. The limits of radiation dosage may be applied to all cases although this is not necessary. The less the involvement the more easily do they stand radiation. The larger the mass and more serious the case, the greater are the demands for careful approach with radiation.

8. The treatment is empirical and will therefore probably persist. If you do not secure recession keep on until you do.

Present Dosage.—Radium 100 mg., distance 2.5 cm. or one inch. Filter brass and lead, 2 mm. Capsule or needles upon wood or mechanic's felt. Size of block, 3x4 cm. As many areas as required to cover involvement. Time, 10 hours or 1,000 mgh. where areas number 7 to 12. Time increased to 14 or 18 hours for single or double areas.

X-ray—5 ma. current at 16-inch distance, 140 KV. and .5 mm. cu. and 1 mm. aluminum filtration. Time, two hours.

1020 Rialto Bldg.

THE COUNTRY SCHOOL TEACHER VS. THE COUNTRY NURSE

JOHN F. CHANDLER, M.D.

OREGON, MO.

What I have to say is intended to apply more particularly to schools in the country but may, I am sure, be made to apply to any country school, consolidated or otherwise. It is to be taken for granted that the teacher is efficient, that she possess a rudimentary knowledge of hygiene equivalent to that given in the common school text-book, and that she has the courage to face squarely the problems involved—dares to do right. She is then in a position to be of more service and, judging from my ex-

perience in inspecting the schools of Holt County, she is of more service to the school and community, so far as the health of the pupils is concerned, than the county nurse because she knows the pupils as individuals and is constantly on the job. The teacher sees the pupils from day to day throughout the term of school, comes to know each child as an individual, is familiar with the behavior of each under normal conditions. She is better able to recognize any deviation from the usual or natural conduct and thereby enabled to tell whether anything is wrong with the child. The visits of the nurse are infrequent, perhaps one in a year, of short duration, and being under the handicap of little acquaintance, she fails to gain the confidence of the children, especially the bashful or backward children who may appear intellectually dull or subnormal, owing to the examination in the hands of a stranger.

Again, the nurse fails to learn anything concerning the absentees and little concerning the mental state of those present whose physical condition may be excellent at the time the nurse calls but who may be indisposed on the day following. Moreover, in studying the child as a separate personality the teacher's work will never lose interest as she may learn much concerning the life, habits and characteristics of each pupil, which the nurse fails to get and much of which may have a bearing on the welfare of the individual physically as well as mentally. You are teaching children of various ages, each one distinct and different from the other, each reacting differently to the same environment and as the environment changes each child's reaction changes. As the teacher is present during the change she is in a better position to judge of the physical and mental state of the individual than the so-called visiting or county nurse who has no opportunity to observe these changes. The teacher, if she be a good teacher, is observant of the mental, moral and physical state of the pupils from day to day, is familiar with certain unusual temperamental traits common in childhood, which are expressed by shyness, seclusiveness, sensitiveness, etc., and the opposite of these, such as boisterousness and aggressiveness.

The nurse is expected to make a physical examination, not a complete examination which takes into account all the factors that make up personality, the constitutional traits, the ability to get on with work, etc., all of which mean so much for the welfare of the child in his school advancement and possibly no little in the preservation of his health. There being a mental state as well as a physical condition—the mental affecting the physical—it becomes necessary to know the child, to study each as an individual, that one may be

enabled to recognize any deviation from the normal. This is impossible with the nurse who sees the child only at the time of her visits to the school and then for but a few moments while making the physical examination.

To quote Professor C. E. Turner: "It is obvious that the fundamental ideas of conduct of life as well as the basis of general education are obtained for the greater part in the graded school. At this period the mind of the child is most receptive, the power of observation and logical deduction most free from external influences and the belief in what the teacher says more implicit. Here is the time then when fundamental facts regarding healthful living are most likely to fall into fertile soil, and consequently this is the place where health education should be most seriously undertaken."

In one of the large cities the plan of having the teacher make preliminary examinations of pupils, schools inspectors checking only those referred to them, has been tried out, the object being that the teachers may acquire information about children which an intelligent mother should know.

The nurse sees the children for a few minutes only, while taking the weight, height, counting the pulse and respirations, testing the eyes with the chart, trying out the hearing, looking at the teeth, throat and tonsils, feet, etc., all of which could be done equally as well once a month by an intelligent teacher who possesses a knowledge of physiology and hygiene equivalent to that found in the school text which the law requires her to teach. With a knowledge of the normal physical condition equal to that which she is expected to teach the children and the information she obtains from her association with the pupils, she should be able to recognize any common, abnormal, or unusual condition present and, as the law requires, report to the health officer, whose duty it is then to investigate. The nurse is not to make a diagnosis; her duty also is to report.

Because of the fact that health and education go hand in hand, our law making bodies have made it obligatory that hygiene, physical training, etc., be taught in the school, the object, of course, being to preserve and promote health, make growth more perfect, life more vigorous, decay less rapid, to encourage normal development of bodily powers, to check abnormal growth and to make death more remote. Incidental to these, of course, is the preservation of the health by building up resistance to disease, by improving the physical condition of the child. And if the children be protected by the watchful eye of the teacher from morbid influences and disturb-

ances the nurse is a supernumerary and a useless expense to the county even though she comply with the law.

There was a nurse at the school
Who was so wondrous wise:
The children of same age, she thought,
Should be of uniform size.

When in fact no two children of the same age may be of same weight or height, complexion, temperament or disposition, each one a personality unto himself and, although of the same family, no two react alike to the same stimulus.

Great stress is laid by the nurse on the matter of regarding the diet for school children. She seems to lose sight of the fact that the demand of the system for food is determined by numerous causes—varies with the temperature, condition of the atmosphere, exercise taken, quantity and quality of food taken at last meal, and according to the rapidity of digestion of the previous meal. She, perhaps, sees the child once a year.

We are constantly having the matter of health center brought to our attention by the nurse. Let the health center be an educational center, and that there may be no duplication in the work as now being done let the public concentrate on the work and help make the school a better health center than it is. And as the true end of education is to be found in the harmony and development of all the faculties—the first requisite in life is to be a good animal, the brain being of little service if there is not vital energy to work it—it behooves us to concentrate our efforts in the school, that the teacher be encouraged in her work as guardian of the health of our children and that we co-operate with her in teaching the child along the line of healthful living, for without health the child cannot attain that efficiency demanded in every walk of life. With health he is fortified against every exigency in the battle of life. The fact that the education of the child centers around the school, and education signifies everything that pertains to bringing up children, unloads a responsibility on the teacher second only to the parents, the visiting nurse performing a part almost negligible and can be well taken care of by the teacher.

While considering these matters we are not to lose sight of the environments of the children. The playground should be ample and the school house more than a mere shelter. The environment should be that which promotes efficiency in labor and strength of character and citizenship. In many instances the school house is the common center for the community and as such should be the pride

of that community. The interior finish should be such as to give an abundance of good light, tend to cheerfulness and uplift. Bad housing, crowding and inefficient ventilation permit many diseases to spread more rapidly. Psychology of colors—for there is much in hygiene of colors—should not be lost sight of in the finishing of a school building as well as provision for warmth and sunshine. We decorate our churches which we may enter once a month, perhaps once a year, and neglect the country school house where the children remain for hours, five days in the week and nine months of the year. Yet we look upon the schools as the backbone of the country.

The teacher in making use of the knowledge of hygiene and physiology as taught in the country schools, and with the wisdom and common sense inherent with the average school teacher throughout the county, as I am fully convinced from inspection of the schools, is doing more to safeguard the health of the children attending our public schools, by ventilating the rooms, regulating the temperature of the rooms, arranging shades to protect the eyes against improper illumination, teaching the pupils to assume correct posture, requiring them to take physical exercise, giving instruction along the line of healthful living, teaching habits of cleanliness by requiring the children to keep clean, by mopping up dust on floor and requiring them to use handkerchiefs, individual cups, and the fact that she is constantly at work, than it is possible to get from even weekly visits of the county nurse, whose annual visits heretofore have been looked forward to with great gusto.

If each district throughout the county were equipped with a few common necessities, which I will mention, the teacher might be able to do more than she has in the past. This is especially so if given proper encouragement by those who should be directly interested.

To protect the child against infection, means of cleanliness should be at hand—some means of washing soiled hands, etc. It is impossible to keep the room temperature at its proper level without some means of taking the temperature. A thermometer should be in the school room. As the humidity varies with the temperature, there should also be a hygrometer in the room. With these instruments at hand the teacher and children will learn to read them, as they do the clock, and will become familiar with the requirements in regard to temperature and humidity and how they may be corrected if not as they should be.

A mirror should be in the anteroom that the children may be reminded of their personal appearance and taught to take pride in being clean and attractive. While it is common for parents to give particular attention to the

clothing, books, etc., to see that the children are properly supplied, they fail to look well to the importance of the health of the child by having a thorough physical examination made by a competent physician before the child enters school, that his condition of health be ascertained and physical defects corrected before school begins. Start them out right that they may not be handicapped throughout the term, or be unable to continue in school.

THERAPEUTIC USE OF THE DUODENAL TUBE*

H. W. CARLE, M. D.

ST. JOSEPH, MO.

The use of the duodenal tube in the diagnosis and non-surgical treatment of diseases of the hepato-biliary tract has received much impetus from the rather optimistic reports of such clinicians as Lyons, Smithies, Rehfuss, etc., but as is nearly always the case there soon followed reports by clinicians of equal eminence that are as discouraging as the others are encouraging. These conflicting reports leave the lesser medical light in a particularly unsettled state of mind as to the efficiency of this procedure. Because of this mental disquietude I began about three years ago to study the usefulness of the duodenal tube in perversions of the biliary tract when used by myself. I have not had access to the elaborate technical apparatus obtainable in hospitals dedicated to medical research but have depended rather upon those clinical procedures available in the average well equipped office and although my conclusions may not have been arrived at by profound scientific research still I feel that in a broad clinical way they are worth while.

The efficacy of the duodenal tube both in diagnosis and treatment of hepato-biliary disease seems to rest upon the theory propounded by Meltzer working in the Rockefeller Institute in 1917, that, by virtue of a crossed innervation when $MgSo_4$ is introduced into the duodenum through the duodenal tube it causes a relaxation of the sphincter Odii and a contraction of the muscle fibers of the gall-bladder with the result that gall-bladder bile is ejected into the duodenum. Lyons, of Philadelphia, was the first to make extensive clinical application of the principle expounded by Meltzer and his reports have been most encouraging. Lyons goes so far as to attempt to differentiate the various types of bile, *i.e.*, duodenal fluid with common duct bile, gall-bladder bile and liver bile; however, his ability to do this

*Read at the sixty-sixth annual meeting, Missouri State Medical Association, Joplin, May 8, 9, 10, 1923.

has been sharply questioned by other investigators.

The data for this paper has been collected from findings and observations made upon twenty-five cases with the clinical diagnosis of gall-bladder disease and upon whom I have used the duodenal tube. My observations have extended over a period of three years and of the twenty-five cases studied all were chronic cholecystitis or a chronic inflammation with an associated cholelithiasis. The acute cases all gave a history that suggested an acute flare-up of a chronic infection. Each of these cases had been diagnosed by a surgeon just previous to coming to me.

Of the chronic cases, the common symptoms complained of were indigestion, gas in stomach and bowels, epigastric discomfort, sense of fullness after eating, aching and pain in right hypochondrium sometimes referred to back under the right shoulder, quite frequently distress also in lower right quadrant of the abdomen. Several complained of cyclic attacks of "biliaryness" with headache, nausea and vomiting of bile occurring at four to eight weeks' intervals, lack of "pep," disturbed sleep, various myalgias and vertigo.

Physical examination of the chronic cases yielded but little information other than tenderness in the gall-bladder and appendiceal regions and ptosis abdominalis with ptosis of right kidney in several of the women. Of the twenty-five cases under discussion, five were men.

Past history of these cases showed twelve to have suffered with chronic tonsillitis early in life, one had typhoid and practically all had suffered with chronic constipation antedating their gall-bladder symptoms. All gave a varied history of the acute infectious diseases. There was but one hypertension and that was of the essential type without any demonstrable kidney lesion. Some exceptions will be referred to in citing the histories of special cases.

The urinalyses were all negative as to albumin and sugar, all showed a marked indican-urea and about fifteen showed a definite trace of bile. Blood examination usually showed a minor type of anemia Hg. average about 70 per cent. with R. B. C. slightly less than normal and W. B. C. averaging about 8,000. In no case did a smear show an abnormal type of cell. Gastric analysis in ten cases showed a uniform low acidity, two cases having complete absence of free HCl with a low total acidity. Others ran free HCl ranging about 15 and low total acidity averaging about 35. In no instance was there a reaction for occult blood.

Blood Wassermanns on three cases were

negative and one was a syphilitic with a cord lesion which had been on treatment. X-rays were made on six patients with one positive finding of stomach and two reports with findings suspicious of gall-bladder disease.

As to focal infections twelve gave history of bad tonsils nearly all of bad teeth, several had dental X-rays with positive findings and had offending teeth removed. Sinuses were negative.

The majority of the chronic cases complained of a chronic constipation that antedated their gall-bladder symptoms and associated with this history of chronic constipation nearly every case evinced distinct tenderness over McBurney's point. As I believe this to be a significant finding as an etiological factor let us pause here and consider the ways in which gall-bladder infections may occur: first, there may be a hematogenous implantation of infectious material from a remote focal point, as, for instance, the teeth, tonsils, sinuses, etc.; second, there may be an ascending extension of an infection of the duodenum or pancreas (this is not common, it is usually the other way around); third, the gall-bladder may be infected by liver bile, the liver having been infected hematogenously or by its efforts at the selective elimination of bacteria from a polluted portal circulation. This appeals to me as being decidedly the most likely method in which gall-bladder infections occur in the greater percentage of instances. The colon has long been known to be possibly the chief offending cavity of the body. Its peculiar bacterial flora with their toxins being responsible for many of the ills the human body is heir to. Smithies made the statement that the bacterial content of the portal circulation was many times greater than other parts of the vascular tree. This thought is also strengthened by the statement of many investigators that in a majority of gall-bladder infections some one of the colon group of bacteria is the usual offender. Accepting the idea of the colon, let me add the appendix as being of decided etiologic importance. One can appreciate the necessity of correcting the hygiene of the large bowel and if necessary the removal of the appendix if one wishes to obtain the best therapeutic results.

Before discussing the findings and results obtained with the tube, just a word as to the technique of introducing the tube. The usual procedure is to have the patient report early in the morning on an absolutely empty stomach, rinse the mouth with a mild antiseptic solution and introduce the proper length of a sterile duodenal tube. Have the patient lie on the right side, make gentle suction with a ten c.c. Luer syringe, then let the contents

of duodenum syphon out. One can tell the duodenal fluid by its golden yellow appearance or to be sure that the tube is in the duodenum one can have the patient swallow a little water and aspirate and if the tube is in the duodenum no water will be recovered. The ideal way, of course, would be to visualize the tube with the fluoroscope. In our cases the tube usually passed into the duodenum in from twenty to thirty minutes, occasionally a longer period would be required. After the tube has been in the duodenum five to fifteen minutes, bile will be noticed in the duodenal fluid. At this time $MgSo_4$ —60 c.c. of a 25 per cent. solution—is introduced into the duodenum through the tube. After introduction of the $MgSo_4$, the appearance of the aspirated fluid is supposed to become much darker, representing gall-bladder bile. Only about 50 per cent. of our cases showed any marked change in the appearance of the aspirated bile.

Those findings we felt to be indicative of a diseased hepatic biliary tract were (smears of centrifuged specimens) pus cells, undue amount of desquamated epithelium, mucus, crystals and bacteria. I feel that these findings can be regarded as significant of pathology in the biliary tract. Earlier in my work I attempted to culture the specimens of bile hoping to isolate an offending organism; however, my efforts were unsuccessful, practically all of the cultures being contaminated, so I abandoned cultures as a routine procedure. Rehfuss places a great deal of emphasis upon autogenous vaccines made from organisms recovered from aspirated bile. I used an autogenous vaccine in one case with indifferent results. Later I had the case operated with beautiful results, so, as I said before, I depend upon centrifuged smears of the different bile specimens for information.

In using the tube therapeutically I usually drain the patient about five hours on the average. My series of patients have been tubed on an average of about eight times. Their bile showed some or all of the findings I believe to be of pathologic significance. Of the twenty-five cases treated with the tube, nine received no benefit, seven received marked benefit, some being absolutely relieved of symptoms, the others showed only mild improvement—suffered relapses and had to undergo another series of tubings. In a parallel group of cases treated without the tube the results have not been on the average nearly so gratifying. Of those cases receiving marked benefit, the longest observation has extended over a period of three years and the shortest four months. Of course, I have not included those cases I thought had stones for those are obviously surgical cases.

At this point, with your indulgence, I will cite a few cases that have been of particular interest to me.

1. Mr. J. H., 48, consulted me June 8, 1920, complaining of pain under right costal arch onset three weeks previous with chill and fever, pain colic-like at times with a constant aching pain referred around under right shoulder—pain not influenced by food—gas, headache and vertigo.

Past history. Typhoid at 20 years, tonsillitis several occasions. Had bad teeth which had been removed several years before. Chronic constipation for years. Gave history suggestive of gall-bladder disease.

Physical examination. Slender man with subicteric tint, very tender over gall-bladder region, otherwise physical examination negative.

Pulse 100, temperature 101 degrees. Urine, sp. gr. 1020, albumin negative, sugar negative, indican ++, bile definite trace, microscopically negative. Blood, Hg. 65 per cent., R. B. C. 4,140,000, W. B. C. 8200. Gastric analysis, free HCl 10 degrees, occult blood negative, total acidity 60 degrees. *Aspirated bile* thick, inky black bile, much mucus, many pus cells, desquamated epithelium and debris.

Diagnosis, acute cholecystitis.

Treatment, patient put to bed and drained upon two successive days, then again after a two-day interval. After third drainage temperature dropped to normal and symptoms subsided.

2. Mr. A. G., age 32, history of grippe-like attack 20 days previous, onset with chill, temperature 104 degrees, general muscular aching, prostration, 10 days after onset began vomiting, no relation to food, slight tenderness upper right abdomen, frequent stools, six to seven a day.

Past history, negative.

Physical findings negative except slight tenderness in right hypochondrium.

Laboratory findings: Urine 1022, albumin negative, sugar negative, indican ++, bile slight trace, microscopic examination negative. Blood: Hg. 65 per cent., R. B. C. 3,960,000, W. B. C. 6,000. Blood pressure 122/87. Duodenal contents showed many pus cells, epithelium debris, etc. Each field examined microscopically showed many streptococci.

Diagnosis, streptococcic duodenitis.

Treatment consisted of drip lavage of the duodenum with mag. sulph. solution. After second lavage temperature dropped to normal, vomiting ceased and patient made an uninterrupted recovery with no recurrence to date.

Throughout my paper I have refrained from emphasizing Lyons' assumption that the gall-bladder is caused to contract and empty itself after the introduction of the magnesium sulphate solution into the duodenum through the duodenal tube. I believe the weight of experimental evidence is decidedly against this theory. However, experimental work conclusively shows that magnesium sulphate (and other solutions when introduced in the intestinal tract, does cause a pronounced increase in bile flow. Assuming also that the gall-bladder is only a part of a general infection of the hepatic biliary tract as brought out by Graham at the Mayos, with not infrequently an associated duodenitis, it is safe to assume that the increased stimulation of bile flow and drainage does good. Also, I feel that the topical appli-

cation of the mg. sulph. solution to the duodenal mucosa is both cleansing and antiseptic.

Although the observation of a small series of twenty-five cases doesn't warrant sweeping conclusions, still I feel they are a representative group and that I have a right to some definite convictions particularly as some of them are backed up in literature by men with much greater clinical material.

1. Gall-bladder disease is a fairly common affair occurring more frequently in females than in males—about five to one in my group of cases.

2. The most common focal sites from which liver and gall-bladder infections may occur seem to be secondary to the appendix and colon.

3. Non-surgical drainage by means of the duodenal tube is of decided value as an adjunct in treating infections of the hepatic biliary tract, particularly in the absence of stones.

4. Best therapeutic results may be obtained in conjunction with the use of the duodenal tube only by removing focal infections and by changing the bacterial flora of the colon and the removal of the appendix when necessary.

5. In conclusion let me say that I believe the treatment of hepatic biliary disease should be a joint problem both for the internist and the surgeon. Too often does the surgeon dismiss a case from the hospital after draining or removing the gall-bladder with a few verbal instructions only to find the patient returning and complaining of the many symptoms that sent him to the operating table. I do not believe the tube will supplant surgery in the treatment of gall-bladder disease, neither am I sure the results obtained by tubing will be permanent. However, I do feel that non-surgical drainage should be used routinely as an adjunct in the treatment of those cases which will not resort to surgery or which are in such poor physical condition as to preclude surgery.

As an after thought let me suggest that as true physicians we should pay more attention to early cases of constipation and chronic appendicitis in the hope that in correcting these conditions we may save the individual the unhappiness of being a gall-bladder invalid at a later period in life.

Physicians and Surgeons Bldg.

EPILEPSY IN EX-SERVICE MEN*

F. M. BARNES, JR., M.D.

ST. LOUIS, MO.

Epilepsy is such a common occurrence in the daily experience of the medical profession at large that it might seem somewhat useless on

this occasion to reiterate observations on this disease which are more or less well known to us all. However, the role of the recent war in the causation of epilepsy has merited considerable attention and it has been thought advisable to review the material which has come up for consideration under the jurisdiction of the U. S. Veterans' Bureau in the Ninth District, to learn if there has been any change in our previous ideas of the disease and its causation. Further, from the opportunities of rehabilitation offered by the Veterans' Bureau, it was thought that this study might give us the opportunity of learning whether or not we could do more than we have in the past toward making our epileptics self-sustaining.

All varieties of epilepsies have been included under the one general term without attempt to specify the types. The essential feature in these cases, which we may more properly perhaps term the epilepsies, is the occurrence of seizures of greater or lesser duration with varying frequency and associated with clouding of consciousness in varying degree of intensity.

So far as numbers are concerned, the epilepsies have been 233, or 5 per cent. of the total neuropsychiatric disabilities. The average age of these cases is 27.5 years, the highest being 46 and the lowest 18. Regarding the age, there has recently been considerable discussion. Before the war and from civil experience, it was generally conceded that the onset of epilepsy was uncommon after the age of 30, that the majority occurred under 20 and most of these between the ages of 12 and 17. Of course, it must be recalled that we have in our post-war cases in most instances no satisfactorily detailed family or personal history. It is possible that did we have such information we might find more instances of the occurrence of the disease at a much earlier period in life followed by a cessation of attacks before service, or we might find a history of certain abnormalities which are usually recognized as associated with the epileptic constitution even though the attacks in full form had not developed. In this connection, it is noted that in 29 per cent. the onset was prior to enlistment, in 45 per cent. first noted during service and in 11 per cent. developed following discharge. When we search for the possible causes of the occurrences of these epilepsies at an age later than was formerly considered the rule, we find that 7 per cent. were syphilitic, 2 per cent. were alcoholic and 3 per cent. had organic brain diseases. In a comparatively small number there were records of acute infectious diseases, such as influenza, scarlet fever, diphtheria, pneumonia and the like. In 13 per cent. we find a record of head injury. Though it is customary to emphasize head injury as a causal factor, its importance is far overrated so far as its

*Read at the Sixty-Sixth Annual Meeting, Missouri State Medical Association, Joplin, May 8, 9, 10, 1923.

relative weight is concerned, because it has been shown that in civil practice, head injury can be considered the cause of epilepsy in about $\frac{1}{2}$ of 1 per cent. of all cases. Naturally, with a more frequent occurrence of head injury in warfare we would expect, as we have found, that the percentage of cases in which head injury appeared as an etiological factor is larger than in civil practice. Mental shock or severe fright have been known to occasion the first attack of epilepsy and under conditions of war such as to which our troops were exposed it is perfectly possible and plausible that this may have been the principle contributing factor in those cases where no other cause can be assigned. In this connection the duration of military service might give some information. We find the average time in service was $16\frac{1}{2}$ months, the longest 72 and the shortest 1 month. Twenty-two per cent. were discharged from service on account of epilepsy and it is noted that 12 per cent. showed evidence of deterioration and 5 per cent. was definitely psychotic. The question arises as to whether epilepsy was more frequent among our military forces than among the civil population in general. It has been estimated that for the general population in peace times, epilepsy occurs once in every 400. Of the total number of neuropsychiatric disabilities, which I have been considering since the war in District No. 9, epilepsy occurred in a ratio of 1 to 19.4. This ratio is somewhat lower than that for the total number of service men discharged into the Ninth District with neuropsychiatric disabilities where we find a ratio of 1 to 14.5. There have been approximately 100,000 claims filed in the Ninth District and taking these claimants as a sample of the communities which they represent, we find that epilepsy exists among this number in a ratio of 1 to 429. In other words, this ratio is somewhat lower than has been given for the population in general and it would, therefore, appear that epilepsy is no more frequent as a cause of disability among our troops than in civil life in peace times. It must be remembered here that so far as possible, epileptics were excluded by the selective service draft and, therefore, we are dealing here with favorably selected material. So far as occupation is concerned, we find that as might be expected in this territory, more than half were farmers and laborers, the balance, so far as occupation is concerned being scattered equally over a wide range with no particular selection evident in so far as degrees of hazard, fitness for the work and the like were concerned.

With reference to these epilepsies there are several problems which come up when we con-

sider the possibilities of rehabilitation, whether this rehabilitation be of the medical therapeutic variety or that attempted by vocational training. So far as the first is concerned we will not here enter upon. From the vocational training standpoint, we must consider the type of epilepsy, the frequency of the attacks and the severity of the attacks. Where the attacks are occurring at frequent intervals and are of considerable severity, though vocational training may be possible, it is not in the broad sense of the term advisable from the viewpoint of results. The nature of epilepsy and especially the occurrence of unwarned attacks of unconsciousness at irregular intervals makes necessary the careful consideration of the type of training to be given. As a general principal training which keeps the individual out-of-doors preventing possibility of accident is deemed best. Not only the element of danger must be considered, but also the element of employability when training is completed. It is difficult to keep an epileptic employed in any clerical position or in any other position where his attacks are apt to upset the routine business being transacted at the time.

In general, it appears that epileptics with associated congenital or acquired lowering of intellectual level are not good prospects for vocational rehabilitation. Those having nocturnal attacks only present a more favorable chance for training, other things being equal. It is impossible to determine mathematically by the number or severity of the seizures whether or not training is feasible and no set rule from this point of view can be made as each case must be determined individually according to circumstances. The only way that this can be done satisfactorily is through a period of adequate observation, examination and trial. Bearing in mind these requisites, 41 per cent. of epileptics had been considered feasible for a try-out at rehabilitation through vocational training and 19 per cent. had entered upon training and of these practically 90 per cent. failed and had to be taken out of training because of the epileptic disability which in many instances appeared to become aggravated.

In conclusion we must agree that a rather pessimistic attitude must be held in so far as the epilepsies are concerned. Few will benefit from treatment, another few will require hospitalization because of the disease and its social result, another small few may be rehabilitated through training, but a much larger balance can be assisted only by financial aid or support by means of adequate compensation.

SCARLATINA-LIKE RASH FOLLOWING TONSILLITIS

ELLSWORTH MOODY, A.B., M.D.

JOPLIN, MO.

If this were to be a description of a new eruptive disease, I should hesitate a long time before presenting this tonsil "rash" for consideration as there has recently sprung up such a multiplicity of new exanthems that it seems as if a new classification of diseases of this type will soon be necessary. This is not an attempt to call attention to anything new nor is it an attempt to present something that has not already been repeatedly observed by most men in private practice, but it is with the idea of calling attention to a symptom which, for some mysterious reason, has not been described.

My attention was first directed to the symptom which I am about to describe several years ago when I made a diagnosis of scarlet fever on a child about seven years of age and found to my surprise that the child was entirely well the second day after I had made the diagnosis. My conclusion had been based entirely upon the appearance of the rash and the fact that there had been a history of tonsillitis with a high temperature the previous day. I have since found that the average practitioner has long recognized that there is a typical rash which frequently follows tonsillitis and which must be differentiated from scarlatina although all of the text-books on diseases of children fail to mention such a symptom.

This condition is one which is frequently mistaken for a definite disease entity in itself and one in which the diagnosis of scarlatina is not infrequently made.

DESCRIPTION OF RASH

The eruption is usually seen about the third or fourth day following an attack of acute follicular tonsillitis, and practically invariably comes on at least twenty-four hours after the fever has subsided. It consists of areas of minute reddish points so closely packed together as to appear confluent and apparently are just under the skin. It has all the appearance of a scarlatinal rash that is just beginning to fade, except that it usually is in patches instead of covering a large surface area. It may appear anywhere on the body but usually begins on the thorax appearing both anteriorly and posteriorly at the same time. It usually spreads to cover most of the trunk including the neck and may also cover the extremities. It is practically never seen on the face, it usually lasts from 24 to 48 hours and disappears rather suddenly without fading. There is never any

desquamation. Obviously, there are no complications or sequelae since this is merely a symptom and not a disease of itself.

DIFFERENTIATION FROM SCARLET FEVER

The one rash with which this can be easily confused is that of scarlatina but it is easily differentiated from that in that:

(1) It is not contagious except in that the tonsillitis itself is contagious. There have been cases where one child in a large family would have this rash and all the rest escape.

(2) The rash appears after the temperature has become normal whereas the temperature rises in scarlet as the eruption develops.

(3) The tonsillitis precedes instead of accompanying the rash and it is the typical follicular form instead of the anginous form so typical of scarlatina.

(4) It has a definite tendency to recur—no immunity is established as is the rule in scarlet.

Undoubtedly there can still be some question as to whether this might not be a scarlatinal infection in spite of all the dissimilarity, but the question also arises as to whether scarlet might not be, after all, a glorified tonsillitis.

The probable reason that a description of this symptom does not appear in pediatric texts is that it is rarely observed in hospital clinics. That is true because parents are not apt to disturb themselves over a mild rash even if it is unaccompanied by other symptoms; associated with the tonsillitis itself, such as fever, malaise, etc., being over by the time the rash appears. Certainly, however, one's attention is called to the condition very frequently in private practice.

CONCLUSION

A definite scarlatina-like eruption of very mild intensity which is self-limited, is not contagious and does not confer immunity, is frequently seen following tonsillitis in children.

Frisco Building.

TRANSPLANTATION OF TENSOR FASCIÆ FEMORIS IN CASES OF WEAKENED GLUTEUS MEDIUS.—The limp caused by a weak gluteus medius, with marked swaying of the body toward the involved side, and dropping of the hip on the opposite side (Trendelenburg sign), is very noticeable in many cases of poliomyelitis. In the endeavor to alleviate this limp, Arthur T. Legg, Boston (*Journal A. M. A.*, January 27, 1923), devised the plan of transplanting the tensor fasciae femoris muscle into the outer side of the femur to increase the abductor power, diminished by the loss of power in the gluteus medius. So gratifying have been the results of this operation that he has performed fifteen such operations with very satisfactory results in most cases. The Trendelenburg sign has disappeared, and the lateral swaying of the body has markedly diminished, if not disappeared.

**THE JOURNAL
OF THE
Missouri State Medical Association**

NOVEMBER, 1923.

EDITORIALS

MEDICAL DIPLOMA MILL EXPOSED

In exposing the medical diploma mill operating in St. Louis and Kansas City the *St. Louis Star* has performed a most valuable service to the people of this state. The diabolical ingenuity of these medical diploma bootleggers so vividly described by the *St. Louis Star* proves them conscienceless creatures devoid of any redeeming qualities, greedy only for the money to be obtained in the sale of medical and high school diplomas.

It is said that one man has confessed to issuing from 1000 to 1500 fraudulent high school certificates. Another of the conspirators is said to have impersonated holders of spurious medical diplomas before medical examining boards and thus obtaining licenses for incompetent persons. The far reaching ramifications of this ring of conspirators is shown by the confession of W. P. Sachs, a former county school superintendent and examiner for the state department of public schools in Missouri. It is said that with the aid of accomplices he could have the name of the bogus student inserted in the official records of the high school whose diploma was fraudulently issued. Furthermore, he could, according to the *Star's* investigation, insert the name of the purchaser of the medical diploma in the records of that institution.

The member of the ring who impersonated applicants before boards, through the connivance of a photographer, was able to attach his picture to the official documents but that picture was so doctored in the making that the imprint faded away in the course of thirty days, leaving nothing but a blank piece of paper.

Such completeness of detail in the manufacture of bogus certificates would of course puzzle almost any examining board but for the most part these enemies of the public weal selected a board known to be lax and loose in their examinations and even bought the aid of a member of two of certain boards of examiners.

The existence of such an extensive and effective combination as that exposed by the *Star* indicates a looseness in the control of high schools and medical schools that must be cor-

rected. If the health of the people is to be safeguarded and the sale of high school certificates and medical diplomas to potential criminals made utterly impossible, the strictest sort of supervision by competent state officials over these educational institutions must be established.

With the medical diploma ring broken up and the conspirators brought to book what of preventive measures against future rings?

The first step, of course, is the inspection of medical schools in the state and of the high schools and a checking up of every practitioner, whether licensed or unlicensed. The state board of health has already begun the consumption of these objects and the State Medical Association is cooperating in the work. It is suggested that there should be an annual registration of physicians recorded in the office of the state board of health.

At present the law permitting the incorporation of institutions authorized to grant degrees is too lax. Herein lies the opportunity of the faker and he knows it. The only requirements imposed by the state for the establishment of a so-called educational institution empowered to give degrees is the association of three persons constituting the president, secretary and treasurer of the proposed school making application to the court for a pro forma decree, accompanied by statements from other citizens that the persons making application are of good moral character. After a perfunctory view of the papers the decree is usually issued and the secretary of state is ordered to issue certificate of incorporation. Armed with this document it is no trick at all for the incorporators to surround themselves with a coterie of persons willing to constitute the "staff" or "faculty" and sign the necessary diplomas with their eyes shut.

But is there no way of preventing the crime at its source? It is to be noted that all the medical schools mentioned in the *Star's* exposure are of the cheap variety, the class C schools, the poor boy's school, where the equipment, the buildings, the faculty, are notoriously inadequate for giving students thorough training in the science of medicine. These institutions are owned and controlled by one man or a small group of men whose chief object is to turn out "graduates" who will become feeders for consultation work and surgery. Such faculty as they may have is drawn from men who are themselves poorly prepared to teach others the intricacies of modern medicine.

It is that sort of school that resists inspection by the state board of health and refuses to meet the minimum requirements for teaching medicine. It is that sort of school that manufactures the advertising doctor, the abortionist, the addict maker, the rum peddler, the diploma

bootlegger. It is that sort of school that the legislature of 1921 said was good enough for Missouri. It is that sort of school that the Missouri State Medical Association in conjunction with the American Medical Association has endeavored to wipe off the map. It is that sort of school that has become extinct in nearly all the states—except in Missouri.

The members of the State Medical Association were the first to recognize the need for statutory control of the practice of medicine and caused to be introduced in the legislature in 1901 a bill to regulate the practice of medicine and control the conduct of physicians. The bill became a law, defective, of course, in some particulars, and especially in regard to education preliminary to entering the medical schools. Our Association then was successful in making the provision for a high school certificate more rigorous and we had supposed that fraudulent certificates had become somewhat rare. The law was, however, effective in reducing the number of medical schools in the state for men of integrity and character closed their schools rather than bear the stigma of conducting an institution that was outlawed by the state board of health. At one time and another Missouri has harbored forty-four different medical schools.

About ten years ago the low grade medical schools that persisted in operating despite the condemnation of the state board of health began the fight to eliminate the word "reputable" from the law governing medical schools and the State Medical Association armed itself for the battle to retain the word, for battle it has been. It is somewhat significant that in the confession of one of the diploma mill members he says he has been selling high school certificates for ten years and in every struggle at the legislature over the retention of the word reputable the low grade medical schools have frankly avowed their opposition to its inclusion in the law. Notwithstanding that there are three class C schools in Missouri, it is noteworthy that the numbers licensed by the Missouri State Board of Health have decidedly decreased during the past six years. The figures are: in 1917, 61; in 1918, 52; in 1919, 11; in 1920, 5; in 1921, 5; in 1922, 7.

All reputable physicians recognize the danger of removing that word from the law and the legislature refused to remove it until the convening of the Fifty-first General Assembly in 1921; that body did so. What the State Medical Association predicted would happen if the word was removed from the law has happened. Fortunately the word was restored by the Fifty-second General Assembly in 1923 and the state board of health may again assume its function of supervising the conduct of the medical schools in this state.

Whether or not the layman can grasp the full significance of the word reputable in the medical law he should be willing to leave it there whenever the reputable physicians in the state oppose its removal, and trust the judgment of that element in the medical profession just as he trusts his body to the reputable physician when sickness overtakes him.

The *Star* has also performed a service for honest medicine and every reputable practitioner will gratefully acknowledge that indebtedness to the *Star's* achievement. No one knows better than the honest physician what crimes are committed in the name of medicine by those who attempt to treat the sick without first having received a good education followed by a thorough training in the fundamentals of the science.

At our annual session in Joplin last May, the president, Dr. A. R. McComas, emphasized the need of co-operation of the people with the medical profession and the state board of health in surrounding the licensing of physicians with safeguards to prevent unqualified persons from posing as competent physicians. We quote from that address:

"The state, by law, has assumed control of the practice of medicine and has created an agency known as the State Board of Health charged with 'general supervision over the health and sanitary interests of the citizens of the state.' It is also the licensing board for physicians. Under the law the premedical as well as the medical education is passed upon by the board. Any physician applying to this board who has not sufficient academic education is refused a license because this is necessary for the intelligent, understanding study of medicine. The people of the state have a right to demand that those to whom they entrust their lives are fitted by education and training for this great and important undertaking.

"Many systems of healing the sick are now in vogue—many of them require not even a grade school education. It is in the interest of public health that we call to your attention the fact that the untrained mind is not capable of coping with the problems of health and sanitation.

"To prolong life, relieve suffering and cure disease has been the theme of the best trained minds for ages. The advances that have been made are not the result of haphazard methods but of patient and untiring labor, advancing step by step; therefore it is the plain duty of the citizenship of this state to take an interest in the health laws—see that those who treat the sick by whatever system of healing they may use have a sufficient educational foundation to comprehend properly the diseases of

the human body and the things they propose to practice. License any and all of the systems if you will, but place around them proper safeguards that they may not prey upon the credulity and ignorance of the public.

"Since the state board of health is the body to whom this important function is intrusted it is fitting and proper that it should have supervision of and should license, under proper regulations, every person who assumes to treat the sick by whatever name the system or method may be called. It should have the power to enforce these laws against any and all who violate them."

INVESTIGATING MEDICAL SCHOOLS AND MEDICAL PRACTICE

Decisive measures to remedy the condition created by the diploma mill have been started by the State Board of Health with the State Medical Association co-operating. Dr. Emmet P. North, President of the State Board of Health, immediately after the exposure was published by the St. Louis *Star*, requested Dr. G. Wilse Robinson, president of our Association, to appoint a committee to represent the Association and Dr. Robinson appointed the following: Dr. A. R. McComas, Surgeon; Dr. W. H. Breuer, St. James; Dr. W. A. Clark, Jefferson City. The board of health has requested Dr. F. C. Waite, Professor of Histology in the Western Reserve University, Cleveland, Ohio, to make the inspection of the medical schools and the State Board of Health records and Dr. Waite has consented to do so. He will be assisted by Dr. N. P. Colwell, secretary of the Council on Medical Education and Hospitals of the American Medical Association. Both these men have had large experience in this work and we may feel sure that the inspection will be thorough and exhaustive.

Basing its action on the reports of these investigators the board will decide what schools are competent to teach medicine in an acceptable manner and what schools are not. After the inspection of the licensing records of the board of health has been completed the board will make a survey of every county to ascertain what persons are practicing medicine and whether they are doing so as licensed graduates of medical colleges or as members of some fanciful pathology. The result of this work will give the people of Missouri a clear understanding of (1) what sort of persons the medical schools accept for matriculants and how well the schools teach the science of medicine, (2) whether the State Board of Health has properly safeguarded the state against fraud and corruption in the issuance of licenses, (3) what persons are now legally licensed to practice medicine.

The inspection of the records of the board of health and the survey of the counties may be instituted without delay, but as our medical law now reads the board has no right to enter a medical school at its discretion for the purpose of inspecting its teaching facilities. The law seals the doors of the schools against such invasion excepting under one condition, namely, when the board receives the application of a graduate the board may demand the privilege of inspecting that school in order to satisfy itself that the school is properly equipped for teaching medicine.

All the schools have signified their willingness to permit the board to make the inspection and the work of doing so will begin early in November.

BOOKS FOR LEISURE MOMENTS

*Reading with discrimination broadens the mind
and strengthens the mental grasp*

A book that should be in the hands of everyone, physicians and laity alike, is "Cures," by Dr. James J. Walsh (D. Appleton and Company, New York), for it presents the subject of the many so-called cures that have come to us across the ages in so entertaining a manner that the book has the fascinations of a deeply interesting novel. Dr. Walsh knows how to write, and, as shown in his latest work, has other graces as a writer—a sane outlook, a mind that is keen, a sense of humor that plays quietly and never offends by becoming boisterous, and a full realization of the weaknesses of human nature. These enviable points should not be slurred over in any writer, and especially are they to be praised in a medical man who by reason of his daily tasks is apt to grow serious as the years advance and lean much more toward pessimism than toward optimism.

But pessimism has not left its ugly trail along the mental processes of Dr. Walsh, hence the book he has written is an excellent tonic for those physicians of wide and varied therapeutic knowledge, with moments of doubt as to the efficacy of all drugs, possibly with one or two exceptions, and a counteractant for the other class of medical men whose laudations of every new drug are momentous chapters in their daily medical ritual.

While it is true that the cures mentioned in Dr. Walsh's book are mostly those of medical pretenders—disciples of quackery—yet there are two cures cited which have swept medical men off their feet in recent years—hypnotism and psychoanalysis—the echoes of the former being still a force in medicine, a dimmed force it is true—and the latter still as rampant as when first thrust upon the medical world.

But in this review we shall not enter into any controversy for or against hypnotism or psychoanalysis; we are mentioning them only because Dr. Walsh has the temerity to place them cheek-by-jowl with "fake" cures. Nevertheless, they are blazened forth in this book so that he who runs may read about them; and this being the case, the medical man who hears of Dr. Walsh's latest work and may possibly shrug his shoulders when told to read it, because of a firm conviction that the book cannot hold any interest for him since it deals only with "fake" cures, is quite in the wrong. Even setting hypnotism and psychoanalysis aside, a goodly number of "fake" cures have interested members of the medical profession to an extent which indicates that despite our constant blaring of the trumpet of scientific knowledge, human nature is a conglomeration of strengths and weaknesses, even in that citadel of prowess—a well-trained medical mind. Hence, we would add that Dr. Walsh's book should be read by every physician,—should be read not to laugh at Bishop Berkeley's Tar Water, Perkins' Tractors, Horse Chestnuts for Rheumatism, Andrew Jackson Davis' "Revelations," and other "remarkable" cures, but to cogitate on his own weaknesses opposite the innumerable drug preparations which today are flooding the market, the literature of which assaults him with the deathless cry—panacea! panacea!—each and every time he goes through his mail.

P. S.

In case you have a patient who is in the convalescent stage but strong enough to withstand the evils which follow laughter when the body is not fully restored to normality, suggest his reading "Over the Footlights" by Stephen Leacock (Dodd, Mead and Company, New York). If his sense of humor is keen he will get the medicine that he needs; if his sense of humor is undeveloped, Leacock's humor will develop it before he half finishes the book. And he will thank you for the medicine, of that rest assured, and remember it as the most enjoyable dose that was prescribed. But even if the gratitude of the convalescent patient is not sufficient praise for this book, the physician himself should read it. He should read it for many reasons—we shall mention only one of the many here, the principal one: to drive away the moments of depression brought on by shattered nerves due to his misgivings as to his worth and value as a medical entity in the face of setbacks and unkind criticism. Yes, indeed, "Dr." Leacock is the doctor both for the patient and the attending physician, for his humor has warmth and envelopes one with the feeling that despite the shafts he thrusts at our weaknesses, he is never sar-

donic, never allows mordancy to tear it from its safe moorings and launch it forth as the sort of humor that only too often hurts. All of us have been to the play but all of us are not discriminate critics; perhaps on account of the price of admission we think it our duty to be benefited by what passes behind the footlights and imagine the incongruities paraded before us are of so little importance that they should be overlooked for the sake of the serious lesson which is being taught us. But with this mood on we miss out in giving a fair estimate of the dramatist's message; perhaps not so much his message as the manner in which it is delivered by means of phrases that are "thick" with peculiarities and eccentricities which by their repetition stamp the dramatist as the protagonist of a new school of dramatic writing. Leacock takes us by the hand in this book and points out the ludicrous situations in the plays of yesterday and the plays of today—the legitimate drama as well as the silent drama—situations which we have accepted in all seriousness because we have gulped down the message whole without any thought of its ridiculous philosophy. Humorists like Leacock are few and far between; the general run of the "tribe" are not literary; they are of the slap-stick order. No one can read his description of the old-fashioned melodrama without passing into a riant mood; no one can read his description of the highbrow drama, bristling as it does with many unsolved problems, without shouts of laughter. And Leacock gets this result without deviating to any great extent from what is in reality an exact reproduction of the original text. He has the gift denied so many of us, of laying the finger on literary weaknesses and on the exaggerated tendencies of all those reformers of the drama who would have us think along lines which are far from simple. We reiterate that, on account of his unusual gift and his power to cause laughter without indulging in gross exaggeration he should be read eagerly; for while we are willing to be serious in the performance of our serious duties, it may be that these duties would not be thought so serious, would not be magnified into something huge, if the leaven of the Leacock humor were added. Humor is not popular today; everyone is a propagandist more or less; and what with the whole press at our heels daily, reminding us that a slight let-up in our consecutive steps of character building would be fatal, the writer of these lines is fearful lest so delightful an exposition of our very human weaknesses as is to be found between the covers of this book will go somewhat unheeded. And more's the pity.

P. S.

NEWS NOTES

THE Nobel prize in medicine for 1923 has been awarded to Drs. H. G. Banting and J. T. R. Macleod, of Toronto, for their discovery of insulin.

DR. JOHN R. CAULK was the guest of the Pennsylvania Medical Society at its annual meeting held at Pittsburgh, November 3. He delivered an address on "Calculus Anuria."

DR. W. T. COUGHLIN, of St. Louis, addressed the Mississippi Valley Medical Association at Hot Springs, Arkansas, on October 10, on "Recent Advances in Plastic Surgery."

TEXAS is richer by \$1,000,000 to be used for its charitable and benevolent institutions because of the gift of William Buchanan of Texarkana. The income from \$400,000 in cash and \$600,000 in United States bonds is to be used to alleviate suffering and distress in the donor's native state.

WE are glad to invite the attention of our members to the advertisement of Mead, Johnson & Co., manufacturers of infant diet materials that have found favor with the physicians. They have resumed their patronage in our JOURNAL after a short interruption awaiting the time when they could obtain preferred space.

SLOWLY but surely the courts are allowing science to creep in and aid them in sentencing offenders. Dr. David I. Jones, city physician and alienist of Chicago, is sitting on the bench with Judge John F. Haas and is gathering material through a rigid psychoanalytical examination of speeders for recommendations for a law authorizing a mental test for all applicants for automobile licenses.

THE Southeast Missouri Medical Society held its 47th semi-annual meeting at Farmington, October 16-17. The meeting was held in the entertainment hall of State Hospital No. 4 and the members were entertained by the superintendent, Dr. J. H. Parker. An excellent program was carried out. Dr. Charles U. Davis of Fredericktown is president. Dr. W. S. Love of Charleston, secretary.

THE "Panel Doctors' Union," an organization of several hundred British physicians, will strike on January 1, if plans made in London recently are carried out. The physicians serve 15,000,000 men and women contribu-

tors to the national Health Fund. For each patient on their lists the physicians receive 9s6d annually. The Minister of Health has proposed a cut in fees to 8s 6d.

THE coming celebration of the 50th anniversary of the founding of the New York Laryngological Society, which as announced by the New York Academy of Medicine will take place November 15, 1923, commemorates an event of unusual interest. As far as can be learned this organization now the Section in Laryngology of the Academy is the oldest society in existence of the department which it represents.

In connection with the celebration there will be an exhibition representing the important contributions made to the progress of Laryngology in the City of New York.

IN the dedication of the new \$225,000 building of the Koch Hospital group for care of tuberculous patients, St. Louis is making one more step forward in safeguarding public health.

The hospital has a capacity of 120 beds and \$20,000 has been expended on its equipment.

The Koch Hospital group is to have ultimately a capacity of 1,068 beds. The buildings are to be arranged in a semicircle extending out from the present main building which will be used as an administration building. The whole group, it is planned, will be completed by September or October of 1924.

A PHYSICIAN is needed at Whitewater, Missouri, a town of 400 people, in Cape Girardeau County, on the Missouri Pacific railroad. It is a good farming country and would prove a satisfactory location for a physician who is prepared to do general practice.

Another good opening is at Gray Summit, Franklin County, also on the Missouri Pacific railroad. It is a town of 300, with good prospects for a capable physician. The physician who has been practicing at Gray Summit is leaving for another city, having taken up public health work. Any member desiring information about these locations may address the secretary.

AT the Annual Fall Festival, Concordia, Mo., October 4, 5, 6, a Child Health Conference was conducted by Dr. Edmund Lissack and in conjunction, to stimulate popular interest, a hygeia contest for the healthiest and best developed, not the prettiest, baby over six months and under two years. A handsome prize was awarded the winner. All children examined and found to be suffering from ill-

requiring treatment were referred back to their personal physicians for attention. Thirty-three children were examined. This was the first Child Health Conference held at Concordia and fostered a high appreciation of the achievements of medicine and added to the prestige of the profession as a whole.

THE tenth annual conference on social hygiene was held in St. Louis Nov. 5, 6 and 7 at the Statler Hotel, the conference headquarters. The program consisted of addresses by noted authorities on public health questions and discussions of all phases of social hygiene.

This conference marks the tenth anniversary of the merger of national volunteer social hygiene agencies which resulted in the formation of the American Social Hygiene Association.

The phases of social hygiene considered at the conference were protective measures, the law enforcement program, educational program, recreational measures, medical measures and discussions of social hygiene in the community.

A CAMPAIGN is to be launched in Springfield in November to raise \$150,000 to enlarge Burge hospital there, so that it will have 70 or 100 beds instead of the present inadequate 33.

At the present time, Springfield is very much under-provided with hospitalization. There is now only one bed to every 350 inhabitants and there should be one for every 150 population.

Last year Burge hospital was forced to turn away several patients each day. Over fifty per cent. of the cases cared for by the hospital were from outside Springfield.

During the campaign, persons will be asked to endow a bed, a cradle, or a room. Eighteen thousand dollars, it is estimated, will endow perpetually a room while \$15,000 would perpetually endow a bed in a ward and \$10,000 would endow a crib for a child. Thus an organization endowing one of these would have it perpetually at the disposal of the society.

MANY progressive manufacturers and merchants say that the cut price bait is losing its attraction. They are paying less attention to this method of getting more business and more attention to the idea of quality merchandise service. They believe the results so far achieved justify the statement that their customers will be better served and their own profits enhanced by giving more attention to quality and less attention to price.

Real service is what counts. While many people will shop about for prices, the great majority are better satisfied with quality merchandise and good service at a fair price.

This makes for confidence—the cornerstone of satisfaction.

Mr. Charles Wesley Dunn, counsel for a number of large manufacturers in this country, has given this problem a great deal of thought. His conclusion is that we are now approaching the time when the real competition will be in merchandise and service rather than in price.

As a nation, we have developed to the highest degree the science of quantity production. Now, with characteristic American progression, it is only natural that we are experiencing a very definite trend toward the development of *quality* production. Members can depend upon the quality of the goods advertised in our JOURNAL.

THE Southern Medical Association will hold its 17th annual meeting at Washington, D. C., November 12-15.

This meeting will be made up of twenty sections and conjoint meetings—the programs covering every phase of scientific medicine and surgery.

The President of the United States will receive informally the members of the Southern Medical Association and their wives Thursday, November 15, at 12:30 p. m. at the White House. Of special interest to the ladies will be the reception at the Washington Club on Tuesday afternoon where Mrs. Woodrow Wilson will be the guest of honor. The usual reception to the president of the Southern Medical Association will be held on Tuesday night at the New National Museum, one of the most beautiful public buildings of Washington, a detachment of the Marine Band furnishing the music.

At the first general session on Monday night, in addition to the address of the President, Dr. Leathers, there will be an address by Dr. Geo. E. Vincent, President of the Rockefeller Foundation, New York; Oration on Public Health, by Dr. W. S. Rankin, State Health Officer of North Carolina; Oration on Surgery, by Dr. J. W. Barksdale, Jackson, Miss.

The University of Virginia Hospital, Charlottesville, has already announced special clinics for Friday and Saturday following the meeting and it is anticipated that Johns Hopkins and the University of Maryland will arrange clinic programs from Friday and Saturday following the Washington sessions.

RECENT amazing revelations of fraudulent trafficking in medical diplomas have aroused both the public and the medical profession in Missouri and elsewhere throughout the United States. The sensational disclosures by the St. Louis *Star* have uncovered the operation

of a gigantic ring throughout the state and nation.

It has been asserted that thousands of men are practising medicine without ever having attended any medical college and that their only qualification has been the ability to pay for diplomas fraudulently obtained on a few days' notice. The disclosures involve physicians and former state officials.

Concerted action by the circuit attorneys of St. Louis and Kansas City has resulted in the arrest of the alleged master minds of the "ring." Four men are under arrest, one of whom has made a detailed confession, and other arrests in St. Louis, Kansas City, and elsewhere in the state and throughout the nation are expected to follow.

The principal characters apprehended to date, as given by the *St. Louis Star*, are:

Dr. Ralph A. Voigt, 36 years old, physician and surgeon with offices in the Minor Building, Kansas City. He is "the master mind" of the ring, it is alleged.

Dr. D. R. Alexander, 45 years old, dean of the Kansas City College of Medicine and Surgery. According to the *Star*, Dr. Alexander sells credits, diplomas, and confers degrees upon anyone recommended by Dr. Voigt.

Dr. Robert Adcox, 63 years old, retired physician living at 4414 Delmar boulevard, St. Louis. It is said that Dr. Adcox is the go-between, or one who helps to furnish grist for the mill.

Professor W. P. Sachs, 56 years old, former minister, former county superintendent of schools, former examiner for the Missouri Department of Public Schools, former dean of the National University of Arts and Sciences of St. Louis, now defunct. He has been connected with several other schools and has recently been writing scenarios for a living. As told by the *Star*, Sachs furnished the necessary preliminary credentials, such as high school diplomas, credits for advanced standing, and so forth, to enable the prospective "doctor" to have the proper background. He also sold a diploma of the National University of Arts and Science.

The *St. Louis Star*, through one of its members of the editorial staff, made the investigation and obtained the evidence upon which the prosecution will be based. The investigation covered a period of over two months during which time the investigator was given, for the sum of about \$1,100, a diploma awarding him the degree of Doctor of Medicine from the National University of Arts and Science of St. Louis, and also the degree of Doctor of Chiropractic from the Progressive College of Chiropractic of Chicago. The Chicago school is still in operation while the National Uni-

versity of Arts and Science closed its doors in 1918.

The *St. Louis Star* has published pictures of the purported diplomas and of the checks and letters which played a large part in betraying the men involved.

Harry Thompson Brundidge, the *Star* reporter who conducted the investigation under his first two names—Harry Thompson—was aided by a fellow reporter whom the "ring" promised also to make a doctor. This co-operation was merely to corroborate Brundidge's story.

Sachs, from whom Brundidge's diploma was finally obtained, has made a complete confession involving the others with the statement that he was made the goat for the whole affair and that he received only about \$25 for his work while Voigt and Adcox got a much larger sum.

The method of grinding out physicians almost over night is briefly this: The prospect's credentials are purchased from Sachs who has the certificates and diplomas in his possession. He is given a certificate of credit for his high school work which he has never done, then he either is given three years' fake medical school credits and placed for eight months in the school of Dr. Alexander or some similar institution, or is given his diploma outright from some defunct institution. Then Dr. Voigt, the master mind, armed with the prospect's diploma, goes to some state having reciprocity with Missouri, passes the state medical examination, gets the license in the name of the prospect for whom he has taken the examination, returns, gives the diploma and the license to the prospect who then in turn seeks a license in Missouri by reciprocity or examination and is then ready if he gets the license to set up his office and prey upon the defenseless public.

Harry Thompson Brundidge, according to his own story, began his investigation of the alleged ring on August 6, 1923. The first public disclosure was made in the edition of the *Star* on October 15. During this time Thompson, as Brundidge was known to the persons involved, was given a certificate of credit for high school work, the diploma from the National University conferring the degree of "Doctor of Medicine" upon him, and the diploma from the Chiropractic College.

Brundidge, as told by the *Star*, under the name of Thompson, took a position with the Meteor Coal Company with offices in the Boatmen's Bank Building and also obtained a room in the vicinity of the residence of Adcox, whom he had been told was connected with the "mill."

Faking a sore throat, and going in search of

a physician, Thompson was directed to Adcox and soon became very friendly with him. After expressing a desire to become a physician, it is alleged that Adcox told him he was as good as a doctor right then.

The next evening, as per agreement, according to Brundidge, the two left for Kansas City to see Dr. Ralph Voigt, the master mind.

Upon reaching Kansas City, and meeting Dr. Voigt, there was little preliminary. Dr. Adcox asked Dr. Voigt if he could fix "Thompson" and make him a doctor. Brundidge alleges that Voigt said he ought to go to a medical school for about a year to get the atmosphere and the background and some knowledge of school so as to be able to talk intelligently about his schoolmates and so on.

Brundidge states that he paid Voigt a deposit of \$50 on this first visit with the agreement that he would send \$600 immediately he returned home.

This he did, as the cancelled checks show.

Adcox took the afternoon train back to St. Louis and Thompson stayed to attend the ball game with Voigt. It was then that Voigt asked for some references for Thompson, as he said he could not afford to take any chances. Brundidge gave him the names of several Springfield and St. Louis men.

After leaving Voigt, Brundidge went post haste to Springfield to post the men whom he had given as reference. It appears later that this was unnecessary, as they were never approached.

The St. Louis *Star* has published pictures of what purports to be correspondence between some of those who have already gone through the mill and Voigt, also between members of the mill. Brundidge has several letters from Voigt, as well as his spurious diploma, and all the cancelled checks with which he paid Voigt. These will be used as evidence.

After days of waiting, and much correspondence, according to Brundidge, he at last received a telegram from Voigt to the effect that although the final document had not arrived, it would at almost any time. On the night of September 22, Brundidge left for Kansas City to become a "doctor."

Arriving at Dr. Voigt's office the next morning, he awaited Voigt's coming. It was at this time that Voigt promised the diploma to Brundidge without the preliminary trouble of going to school for it.

Brundidge asked many questions and details and had the entire workings of the alleged "ring" explained very clearly to him.

The thing which Brundidge feared finally came to pass and that was recognition by some of his old friends in Kansas City, for he had lived there many years. Brundidge finally

convinced the recognizer that he was "Doctor Thompson" of St. Louis.

In the days that followed, Voigt must have had a sorry time of it because some unidentified man told Voigt that Thompson was some sort of secret service man. Voigt rushed to St. Louis in a vain effort to get the cancelled checks and the diploma which had been so recently forwarded Brundidge. Voigt's fears were finally allayed by the fact that he had hired a Pinkerton man to watch Brundidge, who was still masquerading as Thompson and this detective had pronounced Brundidge O. K.

During the interim, while Brundidge was waiting to be made a "Doctor of Medicine," he was made a "Doctor of Chiropractic" for the sum of \$89.50 and three evenings' work, according to his story.

He went to the home of two chiropractors on three different evenings where he bought pamphlets, books and equipment to be used in the practice of chiropractic. He was to practise chiropractic while attending Dr. Alexander's school in Kansas City prior to receiving his medical diploma. When the plans for attending school were abandoned, he was merely in possession of one chiropractic diploma and was able to suffix two more letters to his name —D. C.

When the disclosure came, all the men involved denied any knowledge of illegal operations. Everything they did was open and above board. The cancelled checks which had been endorsed by Dr. Voigt had been cashed by him for Thompson so that Thompson might have money to live on, so Dr. Voigt declared.

Professor Sachs has made a detailed confession alleging that the high school credits and medical diploma were both furnished by him. He claims that he has been made the goat of the other men involved since his share of the booty was only about \$25.

Dr. Alexander claims to know nothing of the workings of the ring. He says that all students admitted to his school must have the proper credits and that if credits from schools which are now out of existence are presented, he demands an affidavit as to their genuineness.

Dr. Voigt and Professor Sachs both promised to make a doctor of R. E. Alexander, another member of the St. Louis *Star* editorial staff who had been introduced to them as Conroy by Brundidge.

Several members of the editorial staff of the *Star* were used merely as observers so that they might be able to identify these men.

When the authorities went in search of Sachs, from whom Thompson's diploma was obtained after one supposed to be coming from California was delayed, they did not find him in. He later surrendered. They searched

his apartment and found many blank certificates and diplomas as well as seals of the various institutions with which he had been connected. One of these seals was of the Department of Public Schools of Missouri. They found ink eradicators, erasers and other implements for forging and altering documents.

Checks and other evidence were taken from the desk of Dr. Adcox.

When the authorities reached the office of Dr. Voigt, they found it stripped of any incriminating evidence.

When Sachs finally surrendered to the authorities, he made a complete confession to circuit attorney Howard Sidener, of St. Louis, which was published in full in the *St. Louis Star*. From this account we give the principal features for the information of our members:

Statement of Sachs.

"I've been in this business for about ten years," Sachs said, "and the first certificate I ever issued for money was while I was superintendent of schools of Washington County, Mo."

"I met Dr. Adcox about ten years ago, after I became associated with the National University of Arts and Sciences. He came to see me at the school and in his smooth, petitioning manner asked for a slight favor because, as he put it, he had always been a friend of the school.

"The slight favor proved to be a request for a blank diploma from the department of medicine of our university. He was so insistent that I gave him the paper taking only a small fee.

"Soon thereafter I discovered that Dr. Adcox was connected intimately with things of vital importance to the school. He seemed to know more about the institution than I. Some time later I found conclusive evidence of the fact that Dr. Adcox was supplying fake credentials for students in our university. These credentials consisted mostly of fraudulent high school certificates. I learned that these worthless credits had been accepted by the university in a perfunctory and matter-of-fact way.

"Soon Deeply Involved"

"Thereafter Dr. Adcox wormed himself into my favor by offering money for courtesies extended. I was soon deeply involved with him, and we did business together. Credits were arranged by us for students in both the National University of Arts and Sciences and the St. Louis College of Physicians and Surgeons.

"I issued many diplomas conferring the degree of bachelor of science for persons whose names were given to me by Dr. Adcox, and whom Dr. Adcox desired to enroll in other colleges. Such a degree could only be issued to an accredited student who had completed two years' work in our university, but the names of the persons brought to me by Dr. Adcox were, of course, not those of students of our institution.

"The purpose of these degrees is obvious, for a degree of bachelor of science is equivalent to two years' work in college. By means of these degrees Dr. Adcox could have enrolled in some other institution of learning, for junior year studies, an individual who had not previously attended college. By adding a fraudulent credit from another institution for the junior year, the individual could be enrolled as a

senior and complete four years of college work in a year. In most instances the persons so enrolled had not even graduated from a high school.

"I got only \$50 each for those degrees!

"After I became the official examiner for the state department of education, under Howard A. Gass, Dr. Adcox and I continued working together, but his requests for high school certificates grew greater continually and I was kept busy supplying his needs. I have no recollection as to the number of high school certificates I issued without holding the examination prescribed by law during the period I was examiner.

"My best recollection is that I furnished him with high school credentials for 350 or 400 persons. During the period I was official examiner I placed the names of the persons on the records of the department of education, so that the certificates would stand an acid test as to their validity.

2,500 Blanks Printed

"While in my official capacity of state examiner I had 2,500 high school certificate blanks printed for use in the future. If I sold these for as little as \$10 each I would have netted \$25,000. But I did not sell them all. I disposed of between 1,000 and 1,500 at \$10 each, sometimes a little more.

"I had Superintendent Gass, before he was stricken with his fatal illness sign several hundred of these certificate blanks, pointing out that I needed them in large numbers, as I was examining many persons who desired the certificates, which are the equivalent of high school diplomas.

"Dr. Adcox, throughout the ten years in which I have been associated, directly and indirectly, with him, always made loud boasts of the large number of persons whom he had gotten through medical schools, in a very short time, on fake credentials by which they obtained advanced study. He has always been in close touch with medical students of St. Louis, Kansas City and other cities and tempts them with the bait of fraudulent credits which will obtain short cuts through school. Many young men, who never intended to go through school by false credits, have been lured into the fields of quackery by Dr. Adcox.

"Time after time I have heard Dr. Adcox assert that he had taken a group of ten or fifteen students to some eastern state where, by his skillful manipulations, and the expenditure of money where money was needed, he got his entire group licensed to practice medicine. He related incidents of such excursions on many occasions.

"Dr. Adcox usually paid me with a check drawn on the account of the Bio Chemical Company and signed with that name, plus that of 'R. Adcox.' That concern, I understand, is no longer in existence, but the doctor maintains an account. A check from the Bio Chemical Company looks like a dividend and is not apt to be thought of in connection with an illegitimate transaction but my impression is that the word Bio should be spelled Buy-o."

Sachs, at this point, identified canceled checks made payable to him and drawn on the account of the chemical company, which were seized in the raid on Dr. Adcox's home. He said the checks had been given to him by Adcox in payment for high school certificates.

Call on Dr. Alexander

"Now as to Dr. Alexander, secretary of the Kansas City College of Medicine and Surgery. Eighteen months ago a young man came to my office and stated that he was anxious to get a diploma from Dr. Alexander, and to arrange for a license in Connecticut. He asked me how much it would cost and I told him

I did not know for sure, but thought about \$200. He gave me \$250 for the cost of the paper and my expenses to Kansas City.

"I figured of course, that Dr. Alexander would split with me, otherwise I would not have undertaken the mission. I called on Alexander, stated my proposition and he agreed, but wanted \$500, stating that he would meet the young man in New Haven on a certain date, deliver the diploma to him and arrange to get him by the board. I thought the arrangement would please my prospect, so I gave Dr. Alexander \$250 in cash and a check for \$250.

"When I returned to St. Louis the prospect told me he would not pay that sum. Then the bank notified me that my check to Alexander would overdraw my account, so the check was returned to me and the matter was dropped.

Tells of Dr. Voigt

"About Dr. Voigt. I've known him several years—I don't know just how long, but I gave him the high school diploma upon which his medical education has its foundation. I issued it on an official diploma of the Potosi High School of Potosi, Washington County, Mo. It bears my seal and signature as county superintendent.

"I have had several transactions with Dr. Voigt relative to medical diplomas and high school certificates. I have transacted business with him personally, by correspondence and by long-distance telephone.

"The last transaction I had with Dr. Voigt was the 'Harry Thompson' matter, which spilled the beans for all of us.

"And just think—Dr. Voigt, who accused me of being too careless in these transactions, is the fellow who made the miscue that led 'Harry Thompson' and the police to my door. The first I heard of the 'Harry Thompson' matter was late in September, when Dr. Adeox called me on the telephone and informed me that Dr. Voigt was trying to get in communication with me on long distance.

"I got him on the 'phone the next day and he told me that he wanted some stuff for a young fellow and would be down to see me. He came out to my house on the morning of October 2 and told me he wanted a high school certificate and a medical diploma for 'Harry Thompson,' a friend, and that he wanted them in a hurry. I told him I could get him fixed up by noon the next day, but he insisted on getting the papers that same day. I told him I would see what I could do—to come back out to my house in the afternoon.

Artist Engrosses Diploma

"I looked around and found a diploma struck from the engraving stone of the National University of Arts and Sciences. It was the last of a number which had been printed for me. Dr. Voigt had told me to issue the diploma from the department of medicine and to date it back in 1916, two years before the university closed its doors. I took the blank diploma to an artist in the Fullerton Building and gave him the necessary instructions for engrossing it. I called for it an hour later and returned to my home in University City.

"Dr. Voigt arrived at 2 p. m. and inquired if I had gotten the goods. I told him that I had. I handed him the diploma and he examined it and seemed well pleased. When I handed it to him there were no signatures upon it save mine. I do not know who wrote in the names of the members of the board of administrators, but I do know that I did not. I know

that the names had not been written on the diploma when Dr. Voigt left my house.

"I then produced a high school certificate bearing the signature of Gass, as superintendent, and myself as examiner. I affixed the seal of the Missouri Department of Public Schools. Dr. Voigt then took a seat at a table in my apartment, took his fountain pen from his pocket and filled in the name Harry Thompson. Remarking that he knew what Thompson's grades ought to be, he filled out the paper by penning the grades after each subject. I watched him do this. He used green ink.

"Dr. Voigt exhibited a license to practice medicine in the state of Tennessee. It purported to authorize Harry Thompson to practice medicine in the state of Tennessee, but I could see that the name of the person to whom it had been issued originally had been erased and Thompson's name written in. Dr. Voigt asked me if I knew anyone who could improve the job and make the license look genuine but I told him it had been messed up so badly that it was beyond use.

Voigt Paid Him \$100

"Dr. Voigt handed me \$100 in payment for the high school certificate and the diploma. I protested that the sum was too small, but he insisted that was all the money he had and I let him have it at that price.

"You know the rest—Harry Thompson opened negotiations with me personally for credentials for a friend of his. I agreed to furnish them and talked to Thompson and his friend."

FINANCE AND THE PHYSICIAN

AN INSIDE VIEW OF THE DIFFERENCE BETWEEN INVESTING AND SPECULATING

SAMUEL O. RICE

Educational Director, Investment Bankers Association of America

The president of a young firm that manufactures biologics and pharmaceutical preparations was brought to me by a mutual friend the other day to obtain information as to floating a bond issue to finance his rapidly-growing business. The mutual friend, a man of sound judgment and high integrity, vouched for the manufacturer, his thorough honesty and capability. The manufacturer's clear and comprehensive reports told further that he had an excellent, well-managed, prosperous business.

"We've made a good deal of money," said the manufacturer, "and put it back into the business, but in spite of everything we can do, we are, every day, more and more behind in filling our increasing orders. We've grown rapidly in our few years of existence and can keep on expanding at the same rate, but our opportunities are so great that I don't want to wait five or ten years in growing into them. We've got everything we need, except capital."

"Why don't you issue stock?" I asked. "You

haven't anything to secure a bond issue properly, considering the large sum you need."

"I'd rather issue bonds," replied the manufacturer, "because I want to put every cent I can get into the business. It would cost at least 15 per cent., probably more, to put through a stock-selling campaign, naturally offering our stock to physicians and surgeons who know the value of our products. It would be much cheaper to issue bonds. Don't you see I'm trying to do everything for the best interests of the business? It's a safe proposition."

"Safe, as a good, fine business speculation," I answered, "but not safe as a bond issue. You haven't adequate security for a bond issue. Now don't misunderstand my use of the term 'speculation.' By it I mean honest, competent, forceful and resourceful business enterprise, the thing that has built this country's prosperity. I don't mean gambling or wildcatting. But every business, no matter how sound and worthy, faces risks. Persons who would put money into your business now would be taking risks. It would be a sensible, sound, fair risk, no doubt, to buy your stock. Your fine earning record and your apparent prospects indicate that you, in all likelihood, will pay handsome dividends. Your stockholders would be repaid for the risk in buying stock. They ought to have the reward. They would deserve it.

"But what pay would your bond holders receive for taking the same risk, if you could issue bonds instead of stock? You can't offer more than current rates of interest on long-time securities. You can't adequately secure the bonds."

"But I don't see where there's such a tremendously big risk in my business," objected the manufacturer. "Don't you believe my reports?"

"Absolutely I believe them. I think you are the kind of man who should be encouraged. I think your business achievements are splendid and your opportunities for development excellent. I think you have as fine and desirable a bit of speculation as I've seen in a year, and by speculation I mean the best kind of business enterprise. But your business and every other good business unavoidably face risks, and you haven't any right to let bond holders incur such risks. I don't think one of your bond holders would lose a penny, but you haven't security that says that, and security is the thing that counts in a bond issue.

"You spoke of the advantages certain of your patents give you over competitors. Suppose some competitor gets hold of patents superior to yours? That's easily possible, isn't it? Further, as you cut into the business of some of these large, old competitors who are firmly established and well financed, they're

going to give you a still harder fight. I don't believe anything like that will keep you from growing or prospering, but it might, and if it did, where would your bond holders be? They'd lose, wouldn't they? Yes, your stock holders would lose, too, but they would have taken the risk because of the large returns offered."

However, I passed the manufacturer's bond proposal on to members of the Investment Bankers Association of America without comment other than that I had thoroughly dependable information as to the manufacturer's high integrity and capability. His proposal was rejected. Subsequently he sold stock to several wealthy men who saw the wonderful business opportunity the manufacturer had. They were men who could afford to take a fair business risk because of the greater reward offered. Had they been men of limited income, dependent on their earnings, I doubt if buying that stock would have been wise. Men of limited incomes who are dependent solely on their earnings should, in seeking to build up an independent income for themselves or their families, buy sound bonds. Only if they can afford to risk the possibilities of loss and to wait for dividends can they afford to buy stocks and then only in good, honest enterprises.

The foregoing is one of the best examples of the difference between speculating and investing that I have seen in several months. Speculating is legitimate and desirable for men who can afford it, but you have noticed that, by implication at least, I have not included gambling and wildcatting, buying and selling on margins as speculation for the average man. Speculating is buying stocks, or anything else, which the buyer has sound reason to believe, either from experience or from dependable advice, will be profitable. Of course, there is speculative selling, too, but for the average man who is not a trader, speculation consists usually in buying into some honest, sound, promising enterprise. Investing consists of putting money into something, usually bonds, that are so well-secured that payment of principal and interest are assured. Buying wildcat oil, flying machine, automobile, radio, patent device and other stocks at the invitation of a promoter whose integrity and business ability are not fully known is not speculating. It isn't even gambling. There's no risk about it—it is certain that the money is lost.

There is only one way for any man who is not a specialist in investment securities to invest safely or to speculate wisely. That is to deal with an investment banking house whose integrity and capability are proved.

OBITUARY

LOUIS PICOT BUTLER, M.D.

Dr. Louie Picot Butler was born at Beaufort, Franklin County, Missouri, in 1866, and died in St. Louis, September 29, 1923, at the age of 57 years. He received his preliminary education at Wyman's Institute at Alton, Illinois. In 1885 he entered the Saint Louis Medical College, which was later merged with the Missouri Medical College, forming the Medical Department of the Washington University, graduating March 8, 1888.

Upon leaving college he was appointed an intern at the Alexian Brothers' Hospital. Shortly after his appointment, he was called to his home by the sudden death of his father, who for many years was a prominent practitioner in Franklin County. Resigning his internship at the Alexian Brothers' Hospital he located in Beaufort and took up the practice of his father, remaining there until the year 1900, when he departed for Europe for a post-graduate course in the universities of Berlin and Dublin. Returning in 1902, he located in Saint Louis, where for twenty-one years he was prominent as an internist, enjoying a large and lucrative practice.

He was a conscientious, painstaking and untiring worker, esteemed by his associates and beloved by his patients and his friends. No journey was too long, no weather too inclement and no night too dark for him to go to the bedside of one in sickness and distress. He was truly a worthy disciple of an honored profession.

Dr. Butler was a member of the Saint Louis Medical Society, the Missouri State Medical Association, and a Fellow of the American College of Physicians and of the American Medical Association.

He is survived by a son, Ralph, a brother, Robert, and a sister, Mrs. J. W. Gerhard, all of Saint Louis.

G. A. JORDAN, M.D.

RICHARD CHARLES LYONS, M.D.

Dr. Richard Charles Lyons, of Naylor, a graduate of Memphis Hospital Medical College, Memphis, Tenn., 1898, died at his home August 4, 1923, aged 61 years.

Dr. Lyons was born at Rising Sun, Indiana, August 18, 1862. His preliminary education was obtained at the public schools in Ohio County, Indiana. After his graduation from medical college he began his practice at Cypress, Illinois, where he remained until he removed to Naylor about twelve years ago. Dr. Lyons was a member of Butler County Medical Society.

CONSTANTINE M. T. KLINE, M.D.

Dr. Constantine M. T. Kline, of St. Louis, a graduate of Washington University Medical School, 1903, was found dead in his automobile, September 5, of heart disease.

Dr. Kline was born in St. Louis in 1877. He had been a member of St. Louis Medical Society since 1905 and was a Fellow of the American Medical Association.

MISCELLANY

REFORMS IN ADVERTISING

An editorial in *The Printing Craftsman* shows that some periodicals are coming to see the wisdom of adopting ethical standards relating to advertising. Some of our newspapers exercise a certain degree of discrimination governed, it would appear, by its response to public opinion more than to the strictest regard for truth. Practically none of the large dailies will advertise the camouflaged abortion remedies, but Lydia Pinkham, Beecham's Pills, and sure cures of indigestion, are still able to buy space. We are glad to reproduce that part of the editorial in *The Printing Craftsman* dealing with patent medicine advertising:

"In the darkened age of a few years ago no business flourished more abundantly or with greater display than that system of public deception founded on patent medicine. Judged by the ratio of the value of the product to the amount received for it, no other business could compare with it. To its pedestal of profit, none however worthy or legitimate, might hope to attain. To printers the necessities of its publicity were a bonanza. Four P's adorned this Aladdin's Lamp. Patent Medicine, Printing, the Public and Prosperity were the certain guide-posts on the well-lighted way to wealth.

There is a vestige of this highway life but it is a darksome, melancholy trail and leads nowhere. Building a nail business in Weymouth would be a hopeful enterprise compared with any burdensome scheme to make Peruna a national beverage.

The whole thing has become a joke, and ridicule is an unbeatable antagonist. When Dr. Cabot, beginning an address to school-teachers, poured into an alcohol lamp the contents of a patent medicine bottle plainly labelled, and allowed it to burn as an enlightening illustration during his discourse, he simply added one nail to a coffin that was on its way.

The Patent Medicine business has been for some time dying and is almost dead. For printers whose future depends upon their success as business builders, it is a field of yesterday's ashes. Time and effort spent in raking it over are assets misspent.

A more plausible and tempting, and for that very reason more dangerous, field to invade, is the advertising of "Proprietaries," that is, medicines prepared by manufacturing chemists for use by physicians.

The enormous number and in many cases arrant fraud of these advertised "pharmaceuticals" has led the American Medical Association, through its Council of Pharmacy and Chemistry, to investigate, and enlighten the medical profession, commanding the worthy and condemning the bad. A great number, among them some of the most widely advertised and to their makers most profitable, were classified as "without therapeutic value," were barred from advertisement in reputable medical journals and their status made known to the profession. Such are no longer prescribed or countenanced by reputable physicians."—*Boston Med. and Surg. Journ.*

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL, FOR 1923

(UNDER THIS HEAD WE LIST THE SOCIETIES WHICH HAVE PAID THE STATE ASSESSMENT FOR ALL THEIR MEMBERS)

Chariton County Medical Society, December 31, 1922.

Webster County Medical Society, January 6, 1923.

Madison County Medical Society, January 15, 1923.

Cape Girardeau Medical Society, January 23, 1923.

Camden County Medical Society, February 1, 1923.

Clark County Medical Society, March 5, 1923.

Perry County Medical Society, March 27, 1923.

Vernon County Medical Society, April 7, 1923.

Schuylerville County Medical Society, May 3, 1923.

Howell County Medical Society, May 5, 1923.

PROCEEDINGS OF THE WASHINGTON UNIVERSITY MEDICAL SOCIETY

Ninety-Seventh Meeting, May 14, 1923

1. GASTRIC GLANDS.—By DR. FOREST H. STALEY.

The present investigation on the secretory structures of the stomach has been carried out by histochemical and physiological experiments upon the gastric glands of the dog, cat and alligator. The first two forms were used as controls and for comparison with the third subject. The results of the experiments on the alligator indicate:

1. That the cells composing the necks and bodies of the glands in the fundus of the stomach according to histo-chemical reactions are parietal cells.

2. That certain cells lying below the columnar epithelial cells lining the stomach and foveolae react to one method of fixation and staining as do the chief cells of mammalian material.

3. That the usual mucous cells occurring as the surface epithelial cells of mammals are not present in the alligator's stomach.

4. That the gastric juice of the alligator is acid to litmus paper and contains a free mineral acid.

DISCUSSION

Dr. R. J. Terry: Dr. Staley is to be congratulated on the progress he has made in a study so beset with difficulties as that involving the structure and functions of the gastric glands. The interesting observations he has reported this evening are the results of the use of special technic, chiefly the histo-chemical methods devised by Bensley; clearly, these results could not have been obtained by the ordinary histological methods. Let me also emphasize the interesting fact which has been discovered in this work, namely, the absence of true mucin secreting cells. The reactions given by the surface cells are not those which result in the presence of mucin. This matter calls for further study in order to determine the nature of the content of the surface cells.

2. CLINICAL CASES.

(a) A CASE OF TABES DORSALIS.—Presented by DR. LEE D. CADY. Discussed by DR. S. I. SCHWAB.

(b) A CASE OF AMYOTROPHIC SCLEROSIS.—Presented by DR. LEE D. CADY. Discussed by DR. S. I. SCHWAB and DR. R. A. KINSELLA.

(c) A CASE OF HODGKIN'S DISEASE.—Presented by DR. KIRBY MARTIN. Discussed by DR. KINSELLA.

(d) A CASE OF AURICULAR FIBRILLATION.—Presented by DR. KIRBY MARTIN. Discussed by DR. R. A. KINSELLA and DR. DREW LUTEN.

(e) DERMOID CYST AND TWISTED PEDICLE IN A CHILD OF TWO AND A HALF YEARS.—By DR. WARREN R. RAINY.

In a review of the literature it has been found that there have been about one hundred cases of ovarian tumors reported in children under the age of five and ten years. A general summary of the case reports was published in the Johns Hopkins Bulletin.

A case was also presented and the differential diagnosis discussed, in this paper. Two months ago I operated upon a baby girl aged two and a half years, who gave a history of recurrent attacks simulating appendicitis over a period of some six or eight months. These attacks were followed by soreness in the right side and often accompanied by vomiting but no rise in temperature. At the time of operation the patient had been sick three days with intermittent attacks of colicky pains over the entire abdomen, marked tenderness over the region of the appendix, slight vomiting, a temperature of 102 pulse 136. A mass was felt in the right iliac fossa which owing to the abdominal rigidity and resistance of the child could not be well outlined. A rectal examination was made and a tumor mass was palpated which had a smooth, regular surface about the size of a small orange, which could be moved to a slight extent. The usual abdominal operation under ether. A large dermoid cyst was removed which already showed signs of degeneration. The ovary and distal third of the tube were sacrificed.

The principal point to which I wish to call attention is the fact that ovarian tumors, as shown by the literature, are not a rarity in children; in the differential diagnosis they are often confused with appendicitis, particularly where there is twisting of the pedicle. The greatest aid in making a differential diagnosis is the rectal examination. In some cases the actual attachment of the tube to the tumor can be made out by the examining finger.

Dr. O. H. Schwarz: This tumor is very interesting from the standpoint of fluid content and its histology. It is a comparatively simple dermoid. However, in studying the lining of the tumor, the squamous epithelium is very poorly developed, but it is present in sufficient degree to recognize it; there are present hair follicles but the hair follicles are not surrounded by sebaceous glands, nor are sebaceous glands found anywhere. There is a small amount of sebaceous material present in the wall, showing that there must have been at one time, sebaceous glands. Ordinarily, when we have a dermoid, we have sebaceous material which, as soon as the tumor is removed, becomes semi-solid. The twisting of the pedicle has apparently nothing to do with the character of the contents of the tumor because in observing adult dermoids with twisted pedicles the contents were always the same semi-solid sebaceous material.

I would like to ask Dr. Rainey what type of ma-

lignant growth is most frequently observed—carcino-matous, sarcomatous, or malignancy in a teratoma?

Dr. W. R. Rainey: Mostly sarcoma.

BOONE COUNTY MEDICAL SOCIETY

The regular monthly meeting of the Boone County Medical Society was held September 4, the president, Dr. R. R. Robinson, presiding. The minutes of the August meeting were read and approved. The committee in charge of the baby contest to be held at Hallsville announced that all plans had been completed.

A communication from the Kansas City Clinical Society was read.

Following a discussion regarding the proposed legislative bureau Dr. Nifong moved that the secretary be instructed to write each member requesting a voluntary contribution of \$3. The motion carried.

Dr. C. M. Sneed presented a case of laryngeal diphtheria. Following tracheotomy and serum the child made a nice recovery. The case was discussed by Drs. Noyes, Smith and Nifong.

Dr. W. R. Shaefer presented a series of cases of herpes zoster. Discussion by Drs. Kampschmidt and Gordon followed.

On motion the meeting adjourned and a meeting of the Staff of the Boone County Hospital was called to order by Dr. Nifong. After reading and approval of the minutes of the last meeting, the reports for the month of August were read. Satisfactory improvement was noted and the Staff was commended on their attendance and assistance in building up a larger clinic.

The following members were present: Drs. Belden, Conley, Gordon, Kampschmidt, Lavender, Neal, Nifong, Robnett, Robinson, Runnemel, Shaefer, Smith and Sneed.

W.M. O. FISCHER, M.D., Secretary.

CALDWELL COUNTY MEDICAL SOCIETY

The Caldwell County Medical Society met at Braymer on August 23 at 2:00 P. M. The minutes of the meeting at Hamilton, July 16, were read and approved.

The application of Drs. J. M. W. Cannon, of Kidder, and that of Mrs. O. N. Thompson, of Breckenridge, were presented for membership. The rules were suspended and they were elected and their names ordered placed on the roll of our Society.

It was voted that the members now in arrears for more than one year pay the dues for 1923 and all doing so be reinstated.

Dr. B. F. Carr, of Polo, read a paper entitled "Diarrhea of Children in Summer."

The paper was discussed by Drs. Brown and Patterson, and the discussion closed by Dr. Carr.

Dr. G. S. Dowell, of Braymer, read a paper entitled "Tonsils and Their Treatment When Diseased." The discussion on this paper was by Drs. Carr, Brown and Thompson.

Dr. Dowell presented a case which was discussed but no definite conclusion was made as to diagnosis until other tests were made.

The Society adjourned to meet at Breckenridge at the call of the president, as no definite time could be made on account of bad roads.

TINSLEY BROWN, M.D., Secretary.

ST. LOUIS COUNTY MEDICAL SOCIETY

On September 12 the St. Louis County Medical Society held its regular meeting at Webster Groves. Dr. Luke B. Tierman gave a talk on "Insulin and

Cardio-renal Diseases," which, of course, was very much enjoyed by all.

Dr. Otto N. Schudde, of Ferguson, presented a very interesting case of diabetes mellitus.

Dr. William F. Mitchell, of Baldwin, was elected to membership. Members present: Drs. Marshall Baker, Wm. F. O'Malley, John H. Sutter, Horine Miles, J. D. Thurmon, Otto N. Schudde, C. P. Dyer, A. W. Westrup. Dr. A. A. Gossow, of St. Charles, was a visitor.

O. W. KOHN, M.D., Secretary.

VERNON COUNTY MEDICAL SOCIETY

The Vernon County Medical Society met in Nevada, Thursday, October 4. Dr. C. C. Dennie and Dr. H. E. Pearse, both of Kansas City, were guests of the society. The morning hours were spent at the Amerman Hospital where a number of cases were examined and several operations were performed.

At 2:00 p. m. the society meeting was called to order at the Court House, by the president, Dr. C. B. Davis. The minutes of the previous meeting were read and approved.

The names of the following members were presented for membership: Drs. J. B. Stokes, of Harrisonwood; A. B. Freeman, W. P. Royston and J. R. Williams, of Eldorado Springs.

Dr. C. C. Dennie gave a very interesting lecture on "Scabies, Impetigo and Foot Disease." Vernon County is always anxious for him to make his annual visit to our society.

Dr. H. E. Pearse, the old "War Hoss," gave us an illustrated lecture on "Abdominal Tumors," pleading for an early recognition and proper treatment. Dr. Pearse also gave a short talk on state legislation and the proposed health fund.

A motion was made and carried that members of Vernon County Medical Society contribute \$3 each to the health fund.

The following were present: Drs. H. E. Pearse and C. C. Dennie, of Kansas City; Dr. H. A. Rhodes, Foster; Drs. Altham and Musser, Metz; Dr. Dawson, Eldorado Springs; Drs. Curl and Colson, Schell City; Dr. Morrison, Richards; Dr. Davis, Walker; Drs. Amerman, Bohannon, Brown, Craig, Callaway, Dulin, Elliot, Heibner, McLemore, Smith, Willson and Yater, of Nevada.

The next meeting will be held November 8, at which time Dr. Lee Miller and Dr. Frank Hall, both of Kansas City, will be guests of the society.

J. T. HORNBACK, M.D., Secretary.

BOOK REVIEWS

ENDOCRIN GLANDS AND THE SYMPATHETIC SYSTEM.

By F. Raoul Mason, M.D., Instructor in Pediatrics, New York Post-Graduate Medical School and Hospital, etc., with the collaboration of Daniel R. Ayres, A.B., M.D., Assistant Professor of Gynecology New York Post-Graduate Medical School and Hospital. J. B. Lippincott Company, Philadelphia.

It has been a pleasure to review this book because of the fact that it presents such a sober and comprehensive view of our present knowledge of the endocrines without that indulgence of fancy that is only too characteristic of many of our modern treatises in this field. The first portion is a general consideration of the endocrin system and its pathology giving a sufficient outline of the historical aspect of

this subject and a résumé of the experimental evidence, that has served as a basis for our present knowledge concerning the functions of the endocrin glands. Functional disturbances are considered and the chapter dealing with the clinical symptomatology is particularly illuminating. The therapeutic aspect is as exhaustive as the present state of our knowledge will permit.

The second portion namely the pathology of the endocrin glands is one particularly worthy of attention, especially the consideration of the thyroid insufficient syndromes. The most important feature of this chapter is the consideration of abortive myxedema and of mild chronic states of hypothyroidism which are very frequently overlooked in the absence of frank myxedematous symptoms. Throughout the book the sympathetic nervous system is given a properly generous treatment and it is certain an outstanding fact that no true concept of the endocrines or their effects can be secured without a correlative study of the sympathetic nervous system. The endocrines and the sympathetic system are most intimately connected and in their interaction lies the explanation of much of the symptomatology ordinarily attributed to endocrin dysfunction.

The last chapter treats of endocrin therapy and is a fairly complete although brief tabulation of the various products and their administration. This chapter suffers in our opinion because there is insufficient critical discussion of therapeutic results.

All in all we believe the book to be a conservative and valuable addition to the literature of the endocrines, the most important feature being the association consideration of the endocrin glands and the sympathetic nervous system.

J. L. T.

THE URETHRA AND THE URETHROSCOPE. A Manual of Practical Urethroscopy. By F. Carminow Doble, M.R.C.S., L.R.C.P. Lond. Temporary Captain, R.A.M.C.; etc. With Foreword by Major A. T. Frost, O.B.E., R.A.M.C. Officer Commanding Military Hospital, Rochester Row. Henry Frowde and Hodder & Stoughton, London. Oxford University Press, New York. 1923. Price, \$3.40.

This is a small volume of 120 pages written by a surgeon who is not only a master of urethroscopy but also a trained teacher and writer. Major Frost in a foreword says, "that it is the only book in the English language which gives a complete account of the best known urethoscopes made in England, with a working description of the principle types." It is well illustrated with colored charts of the normal and diseased urethra and detailed drawings of the various types of direct and indirect vision urethrosopes with a clearly written description of the instruments, often in the words of the inventors.

The author from a large clinical experience is convinced that the urethroscope, in skillful hands, is of great practical value in the treatment of diseases of the urethra and gives explicit instructions as to the when, how and why its use is indicated. As a result he has succeeded in producing a book that is as near an approach to bedside instruction as the written word can go.

The volume is pre-eminently a practical one and can be highly recommended to the specialist in urology as well as to the general surgeon, for whom the author claims it was written.

It is neatly bound, the paper is good, the type clear and comfortable to read, the illustrations well drawn and there is a comprehensive index.

A. R.

NOUVEAU TRAITE DE MEDECINE. Publié sous la Direction G. H. Roger, Fernand Widal, P. J. Teissier. Secrétaire de la Rédaction: M. Garnier. Fascicule XII: Pathologie de l'Allareil respiratoire. Cloth, Price 40 francs. Pp. 596, with 66 illustrations. Paris, Masson et Cie, 1923.

This is the twelfth volume of the great system of medicine, being published in French, and edited by Roger, Widal and Teissier. The chapter on tuberculosis is written by Letille and Halbron and is a splendidly comprehensive account. The description of the pathology of tuberculosis of the lungs is the best part of it. It is illustrated by numerous photographs and histologic drawings. In the section on physical signs, Potenger's method of palpation is dismissed in half a paragraph. The use of the X-ray as a diagnostic agent is not given sufficient emphasis. All the radiographs reproduced show terminal pathology. Under treatment the emphasis is upon rest, climate and food. Tuberculin and pneumothorax are both recommended and both receive adequate description.

The diseases of the pleura are well covered. In the chapter on interlobar empyema, the reviewer dissent from some opinions stated but the treatment of the whole subject is so much more intelligent than that of any of the three systems of medicine published in the United States lately as to be a sheer leap.

L. C.

ETUDES NEUROLOGIQUES. By Georges Guillain, Professeur agrégé à la Faculté de Médecine de Paris Medicin de l'Hôpital de la Charité Membre de l'Academie de Médecine. Masson et Cie, Editeurs Libraires De L'Académie De Médecine 120, Boulevard Saint Germain, Paris (VIe) 1922.

This volume is made up of over fifty papers contributed by the author to various French medical journals during the last decade. As a wide range of subjects is considered it cannot be adequately covered in a brief review. The general headings (which, by the way, are not always an accurate indication of the titles of individual papers) are as follows: Fixation of poisons in the nervous system; Pathology of encephalitis; Pathology of the spinal cord; Syphilis of the central nervous system; Pathology of the cranial nerves and roots; Muscular atrophies; Cerebro-spinal fluid, lumbar puncture, meningeal pathology; Epidemic encephalitis; Intoxication.

Individual articles are frequently merely case reports covering only a few pages. Very interesting are the studies on the fixation of various poisons—diphtheria and tetanus toxins, tuberculin and certain drugs—in the central nervous tissues. The author has devised a special method for determining this fixation and the results are suggestive. In one paper he describes four cases of a form of meningitis associated with icterus the etiology of which was not established. In another he gives his conception of the genesis of the cord changes of tabes dorsalis, which changes he believes to be a result of the contamination of a stream of lymph assumed to supply the posterior columns of the cord and the overlying pia. This theory, it may be stated, is not especially well supported by the argument. Again, a case of ascending paralysis of the Landry type with autopsy is described; the cord findings were negative and no etiology was established.

All the case studies are very thorough. This feature together with the number of contributions in the space of ten years furnish an example of scientific interest which American neurologists would do well to imitate. The volume is attractively gotten up and would be a valuable addition to the library of any neurologist.

L. B. A.

DISEASES OF THE NERVOUS SYSTEM. A Text-Book of Neurology and Psychiatry. By Smith Ely Jelliffe, M.D., Ph.D. Formerly Professor of Psychiatry, Fordham University, New York, etc.; and William A. White, M.D., Superintendent of St. Elizabeth's Hospital, Washington, D. C., etc. Fourth edition, revised, rewritten and enlarged. Illustrated with 475 engravings and 13 plates. Lea & Febiger, Philadelphia and New York. 1923. Price, \$9.50, cloth.

That a fourth edition of this work has been required since its appearance in 1915 is sufficient evidence of its value. The changes in the present edition consist of amplification and extension to include recent developments in the field of neuropsychiatry. The general point of view remains unchanged.

It may be worth while to recount some of the distinctive features of the book. Psychiatry is included as an aspect of neurology, yet the correspondences between psychic occurrences and the physiology of the nervous system are hardly touched upon.

The work is not merely a collection of chapters, but an organism the plan of which is suggested in the Introduction, which has as subtitle, "On some principles underlying diseases of the body and modification of human behavior." To the reviewer, this introduction is the most disappointing part of the book. A section so important to the meaning of the whole should be logically constructed, without ambiguity, with an accurate and unvarying use of terms, and where it is necessary to use philosophical or biological concepts these should fit into the standard terminology of philosophy or biology. To the reviewer all these principles seem to be violated with a great loss of simplicity and clearness. The criticism is not captious but is made because while the chapter is not up to the standard of the book it could easily be made so.

In the subject matter the difficult balance between too much and too little has been skilfully maintained and the bibliography is sufficient to suggest further readjusting without being too profuse. The sections on therapy are satisfactory, especially the insistence upon psychotherapy in organic nervous diseases. The strong bias toward psychoanalysis is prominent throughout.

E. T. G.

A STUDY OF MENTAL DISEASES. By F. M. Barnes, M.D. C. V. Mosby Co., St. Louis, pp. 282. Price, \$3.00.

We are herewith presented with a new book on psychiatry. There is a field for it. The great prevalence of mental cases first clearly demonstrated during the war and confirmed by the subsequent work with disabled veterans shows the need for more attention to mental deviations than is now accorded them. Any effort which serves to increase interest in them is justified for this reason alone. Present text-books are few in number and each is glaringly inadequate in one feature or another.

The present volume is evidently intended for the student and the practitioner. The matter is briefly and simply presented in remarkably clear language. For the first time in a text-book on psychiatry one finds evidence of an acquaintanceship with the mental problems which are found outside an asylum. This fact probably more than any other gives the book its peculiar value and its chief claim to superiority over others. In general it may be said that here we find presented without a touch of faddism and in a thoroughly authoritative manner psychiatry as it appears to one familiar with all its aspects.

The first part is given over to general aspects of the subjects, history, methods of study, mental hygiene and social psychiatry, psychology and medical

practice, psychology, observation of mental cases, structure and function of the nervous system, sensation, consciousness, attention and perception, hallucinations, memory, association, emotions, orientation, judgment and delusions, intelligence, motility, causes, treatment, history taking, and classification. The second part takes up in detail the various psychoses: infective-exhaustive, toxic, endocrinic, organic, traumatic, syphilitic, paretic, senile, dementia precoox and manic depressive. Finally, chapters are devoted to the psychoneuroses and the defective states.

Special features which may be mentioned are, first, the conception of treatment. Treatment is given the connotation of anything that helps the patient get well and the chapter is chiefly devoted to occupational and vocational therapy, in which the author has had a large experience. Second, the importance of the chapter on psychology and medical practice is very great in view of the prevalence of psychic affections. Dejerine has said that one-half of all medical complaints are of mental origin. The clarity of the presentation of psychologic aspects of the subject is remarkable. The various psychoses are adequately described and the treatment of each is given in sufficient detail. If one may record a lament, it will concern the indefiniteness of the chapters on causes in modern texts. Some day, let us hope, we shall have an exposition of etiology that means something.

The book should be in the library of every student and practitioner.

L. B. A.

THE TONSILS: Faucial, Lingual and Pharyngeal with Some Account of the Posterior and Lateral Pharyngeal Nodules. Illustrated. By Harry A. Barnes, M.D., Instructor in Laryngology, Harvard Medical School, etc. St. Louis: C. V. Mosby Company. 1923. Price, \$5.00.

The author has presented in a concise and interesting manner a complete book on the tonsils. The reader is not burdened with details, neither is he forced to accept as a fact the single opinions of the author.

The embryology, anatomy, histology and pathology of the tonsils are brought out in a manner that explains much of the present condemnation of these tissues.

Aside from an abundance of illustrated histological sections there is a marked scarcity of instructive and essential illustrations. The surgery and different techniques are fairly selected from an over-abundance of supply, giving the advantages and disadvantages of each method.

There are numerous suggestions on the management of complications that may arise, either from disease or operation, that are quite sensible and useful. Fortunately, one is not left with the impression that the tonsils are "the root of all evil," in spite of the fact that all their sins are exposed.

I can think of no better literature for the intern who is serving a rotating service and expects to do his own tonsillectomies when he enters general practice. It should, at least, impress upon him that there is something to be considered aside from the tricks of the surgical technique.

O. J. D.

DUFF HOUSE PAPERS. Edited by Edmund I. Spriggs M.D., F.R.C.P. Volume 1. Illustrated by 190 figures, 6 charts, and 1 colored plate. Henry Frowde and Hodder & Stoughton, London. Oxford University Press, New York. 1923. Price, \$9.50.

The volume of 387 pages represents selection of papers issued from Duff House since its opening in 1913. It contains articles on a wide range of subjects by various authors, such as an address on Surprises in Diagnosis, Examination of the Vermiform

Appendix by X-Rays, On Dropping of the Stomach, Routine of Radiologic Examination of the Alimentary Tract, A Study of Sixty-Five Cases Seeking Relief After Short Circuiting Operations, A Case of Gastro-Jejunocolic Fistula With Stercoraceous Vomiting Following Gastro-Enterostomy, A Case In Which Perforation of a Duodenal Ulcer Was Discovered by X-Rays, Duodenal Diverticula, X-Ray Aspect of Diverticulosis, Diverticulitis, A Case of Spastic Constipation, The Patients Manual of Diabetes, Some Observations On The Blood Sugar in Diabetes, The Fasting Treatment of Diabetes, A Case of Pancreatic Insufficiency, Meal Diet in Sprue, On Sulphaemoglobinemia, etc.

All the articles in this volume are very clearly written and contain most interesting and practical matter. It is also profusely illustrated. Of particular importance are the articles on the X-ray examination of the alimentary tract in health and disease, and also a most elaborate and detailed collaboration of diabetic formulae and methods of preparing diabetic foods, that is particularly practical and valuable in the dietetic suggestions for such cases.

As a volume on a diversity of subjects and of practical value to the practicing physician, it is distinctly valuable.

MALADIES DE L'APPAREIL RESPIRATOIRE. Tome 11 du *Précis de Pathologie Médicale* par MM. F. Bezançon, professeur à la Faculté de médecine de Paris et S. L. de Jong, médecin des hôpitaux de Paris. 1 Vol. de 566 pages avec 82 figures et 2 planches en couleur. Collection de *Précis Médicaux*. Masson et Cie, Editeurs.

The authors define a *Précis* as a book between the large didactic treatises and the little compendiums used by students for preparing for examinations. In this *Précis* they try to give for the students the important things that they ought to know, leaving in the light the facts and in the shade the theories. They say that they are trying to make a text book like that of Dieulafoy, which was a model of its kind. The authors have produced a very definite, clear-cut, easily understood text book which should be of considerable use to students and to physicians who seek to review their knowledge. They have taken up some of the American literature. For example, they refer to Walker's work with "Sensitization in Cases of Asthma," although they do not give it the place and credence that Americans do.

For those who read French the book will be of interest and value. It will keep them from becoming too one-sided because of American fashions in medical theories.

G. H. H.

INTERNAL MEDICINE. In three volumes. Illustrated with 427 text cuts and 14 in color. Volumes 1 and 2, Medical Diagnosis. Volume 3, Medical Treatment. By James C. Wilson, A.M., M.D. Professor Emeritus of the Practice of Medicine and Clinical Medicine in the Jefferson Medical College, and Samuel Bradbury, M.D., Member of the Faculty of Cornell University Medical College; Assisted by Creighton H. Turner, M.D. Philadelphia and London: J. B. Lippincott Company. 1923. Price, \$20.

The Sixth Edition of Internal Medicine by James C. Wilson and his collaborators impresses one with the demand that has spontaneously arisen or has been created for this type of text. It consists of three volumes together with a desk index volume. Two are devoted to diagnostic methods, one a compilation of the standard signs, symptoms and tests; the other, though admittedly a work on diagnosis, has covered as it must the etiology, symptoms, diagnosis and prognosis of the classical disease syn-

dromes. There is no section devoted to morbid anatomy. The third volume deals with treatment. There is a large variety of well selected illustrations throughout. For the practitioner who desires more than a single classic volume but who does not feel justified in selecting one of the many volumed systems now on the market, this text should make its greatest appeal. This edition has been brought up to date by the addition of several themes, notably those basal metabolism, encephalitis and endocrinology.

W. A. M.

Labyrinth and Equilibrium. By Samuel Steen Maxwell, M.S., Ph.D. Professor of Physiology in the University of California. Illustrated. Philadelphia and London. J. B. Lippincott Company. 1923. Price, \$2.50.

This is one of a series of monographs on Experimental Biology by American authors, and presents the equilibrial reactions from the labyrinths of vertebrates as objectively shown by experiments, made mostly on the dog fish.

In the discussion of the mechanism through which these reactions are brought about the author questions the generally accepted explanation of the quick component of the nystagmus as of cerebral origin, and gives a theory of his own.

The book is interesting and suggestive.

J. B. S.

THE TRUTH ABOUT MEDICINES

NEW AND NONOFFICIAL REMEDIES

Sofos.—A mixture of sodium dihydrogen phosphate and sodium hydrogen carbonate (sodium bicarbonate), rendered stable by coating the particles of one of the constituents with disodium hydrogen phosphate. One part of sofos has the same phosphate value as 1.75 parts of sodium phosphate U. S. P. When sofos is treated with water, sodium phosphate (Na_2HPO_4) is formed and carbon dioxide is set free. Sofos has the physiologic action of sodium phosphate. It differs from the effervescent sodium phosphate preparations in that it is free from citrate or tartrate. General Chemical Co., New York.

Pollen Extracts. P. D. & Co.—Liquids obtained by extracting the proteins from the dried pollen of various species of plants. The products are standardized in "units," a unit being the extractive obtained from 0.002 mg. of pollen. For a discussion of the actions and uses of pollen preparations, see Pollen and Epidermal Extract Preparations and Biologically Reactive Food Proteins, New and Nonofficial Remedies, 1923, p. 234. These preparations are marketed in packages for diagnostic use and in packages intended both for diagnostic use and for treatment. The following preparations are marketed: Pollen Extract Ragweed P. D. & Co. and Pollen Extract Timothy P. D. & Co. Parke, Davis & Co., Detroit. (*Jour. A. M. A.*, July 7, 1923, p. 27.)

SULPHARSPHENAMINE-BILLON.—A brand of sulpharsphenamine—N. N. R. (see *Jour. A. M. A.*, March 31, 1923, p. 919). It is marketed in ampules containing, respectively, 0.1 gm., 0.2 gm., 0.3 gm., 0.4 gm., 0.5 gm. and 0.6 gm. Powers-Weightman-Rosengarten Co., Philadelphia.

RADIUM EMANATION (RADIAL EMANATION CORPORATION).—The emanation, mechanically removed from a solution of a radium salt, in admixture with inert gases. It is supplied in sealed glass capillary

tubes; each tube accompanied by a statement of the amount of radium emanation in terms of millicurie contained in it at the time of sale. The radiation from radium emanation as a therapeutic agent is analogous in all respects to that from radium and its salts, except that the activity decreases rapidly (see Radium and Radium Salts, New and Nonofficial Remedies, 1923, 255). The intensity of radium emanation decreases rapidly through decay (at the rate of about three-fourths per cent. per hour). Radium Emanation Corporation, New York. (*Jour. A. M. A.*, July 21, 1923, p. 213.)

POLLEN PROTEIN ALLERGENS-SQUIBB.—In addition to the products described in New and Nonofficial Remedies, 1923, p. 241, the following have been accepted: Ash Pollen Allergen-Squibb; Hickory Pollen Allergen-Squibb; Honeysuckle Pollen Allergen-Squibb; Maple Pollen Allergen-Squibb; Oak Pollen Allergen-Squibb; Pine Pollen Allergen-Squibb; Poplar Pollen Allergen-Squibb. E. R. Squibb & Sons, New York.

ANIMAL EPIDERMAL EXTRACTS ALLERGENS-SQUIBB.—In addition to the products described in New and Nonofficial Remedies, 1923, p. 241, the following have been accepted: Beaver Fur Allergen-Squibb; Chamois Skin Allergen-Squibb; Civet Cat Fur Allergen-Squibb; Fox Fur Allergen-Squibb; Kolinsky Fur Allergen-Squibb; Leopard Fur Allergen-Squibb; Mink Fur Allergen-Squibb; Muskrat Fur Allergen-Squibb; Mole Fur Allergen-Squibb; Opossum Fur Allergen-Squibb; Persian Cat (Angora) Fur Allergen-Squibb; Pony Fur Allergen-Squibb; Racoon Fur Allergen-Squibb; Seal (Alaskan) Fur Allergen-Squibb; Seal (Hudson) Fur Allergen-Squibb; Sheep's Wool Allergen-Squibb; Skunk Fur Allergen-Squibb; Squirrel Fur Allergen-Squibb.

Foop ALLERGENS-SQUIBB.—In addition to the products described in New and Nonofficial Remedies, 1923, p. 242, the following have been accepted: Apricot Allergens-Squibb; Butterfish Allergen-Squibb; Cocoa Allergen-Squibb; Cocoanut Allergen-Squibb; Cottonseed Allergen-Squibb; Duck Allergen-Squibb; Fig Allergen-Squibb; Flaxseed Allergen-Squibb; Ginger Allergen-Squibb; Goat Allergen-Squibb; Guinea-Hen Allergen-Squibb; Hay (Alfalfa) Allergen-Squibb; Huckleberry Allergen-Squibb; Lemon Allergen-Squibb; Olive (ripe) Allergen-Squibb; Paprika Allergen-Squibb; Pineapple Allergen-Squibb; Pheasant Allergen-Squibb; Pumpkin Allergen-Squibb; Rabbit Allergen-Squibb; Scallop Allergen-Squibb; Sea-bass Allergen-Squibb; Smelt Allergen-Squibb; Sole Allergen-Squibb; Tea Allergen-Squibb; Tobacco Allergen-Squibb; Vanilla Allergen-Squibb; Whiting Allergen-Squibb; Yeast Allergen-Squibb.

POLLEN EXTRACTS-ARLCO.—In addition to the products described in New and Nonofficial Remedies, 1923, p. 237, the following have been accepted: Arizona Ash Pollen Extract-Arlco; Arizona Cottonwood Pollen Extract-Arlco; Arizona Walnut Pollen Extract-Arlco; Bermuda Grass Pollen Extract-Arlco; Burr Ragweed Pollen Extract-Arlco; Burrowed Pollen Extract Arlco; California Mugwort Pollen Extract Arlco; Carclessweed Pollen Extract-Arlco; Carpet Sage Pollen Extract-Arlco; Greasewood Pollen Extract-Arlco; Hill Sage Pollen Extract-Arlco; Johnson Grass Pollen Extract-Arlco; Mexican Tea Pollen Extract-Arlco; Mountain Cedar Pollen Extract-Arlco; Orach Pollen Extract-Arlco; Pigweed Pollen Extract-Arlco; Prairie Ragweed Pollen Extract-Arlco; Russian Thistle Pollen Extract-Arlco; Sage Brush Pollen Extract-Arlco; Sea Blite Pollen Extract-Arlco; Shad Scale Pollen Extract-Arlco; Western Ragweed Pollen Extract-Arlco; Wild Sunflower Pollen Extract-Arlco.

Pollen Extracts-Arlco are marketed in sets of five vials representing graduated concentrations; also in concentrated solution in capillary tubes for diagnostic test. Arlington Chemical Co., New York. (*Jour. A. M. A.*, July 28, 1923, p. 299.)

PROPAGANDA FOR REFORM

TOXICITY OF CARBON TETRACHLORID.—Experiments on dogs demonstrated that large doses of carbon tetrachlorid produced degenerative changes in the liver and kidney of these animals. In view of these findings and the experience of Lambert, it would appear advisable that the dose of carbon tetrachlorid be reduced in routine treatments. (*Jour. A. M. A.*, July 7, 1923, p. 47.)

THE DREYER TUBERCULOSIS VACCINE.—Newspapers have carried extended notices of the Dreyer so-called "defatted" tuberculosis vaccine. The experiments of Professor Dreyer of the Department of Pathology of Oxford University depend on the production of an antigen preparation from tubercle bacilli which are previously deprived of their waxy envelope by treatment with a formaldehyde solution. Animal experiments and some clinical trials have been reported which give ground for the hope that the new antigen may prove of value. Professor Dreyer's work does not offer sufficient evidence to warrant the conclusion as yet that any marked improvement has been made in the treatment of tuberculosis. (*Jour. A. M. A.*, July 14, 1923, p. 138.)

ANOTHER ELECTRONIC DIAGNOSIS AND TREATMENT.—A report on the case of Mr. D., who was treated for carcinoma by C. E. Phelps, M. D., an Abrams disciple of Hartley, Iowa, is of interest because it represents, undoubtedly, what is duplicated in hundreds, if not thousands, of cases, in various parts of the country. The clinical report is by Dr. E. E. Munger of Spencer, Iowa, and the pathological report was made by Dr. E. R. LeCount of Chicago. Briefly, it is the story of a man in his seventies suffering from inoperable carcinoma of the stomach with implanted metastasis on various other abdominal organs. Dr. Munger diagnosed the condition when the patient first came to him. The diagnosis was verified at the Mayo Clinic. Then the man began taking the "Abrams Treatment." He was led to believe that he was being rapidly cured and was finally told that "everything had cleared up except a trace of coliseptis." A month later he died. (*Jour. A. M. A.*, July 28, 1923, p. 317.)

ETHYL CHLORID AS A GENERAL ANESTHETIC.—The published mortality rate from ethyl chlorid anesthesia varies from 1 in 15,000, which is also the mortality rate of ether anesthesia, to about 1 in 6,000. From these statistics, therefore, one might judge that ethyl chlorid stands between ether and chloroform; but it is probably closer to the latter, which gives a mortality of about 1 in 3,500. Ethyl chlorid, however, is used for minor anesthesia, and it is unfair to compare it with the major anesthetics for prolonged operations. The fair comparison for ethyl chlorid is with nitrous oxid, the accepted mortality rate from which is about 1 death in 1,000,000 anesthesias. Hence, whether for induction of anesthesia or for minor anesthesia, ethyl chlorid is somewhere between 200 and 66 times more dangerous than nitrous oxid. It is, on the other hand, somewhat safer than chloroform. The essential danger from ethyl chlorid lies in the suddenness of the death which may occur within half a minute from the beginning of the inhalation. The danger signs are such as may be overlooked by any but the most experienced anesthetist. (*Jour. A. M. A.*, July 28, 1923, p. 320.)

THE JOURNAL OF THE Missouri State Medical Association

The Official Organ of the State Association and Affiliated County Societies
Issued Monthly under direction of the Publication Committee

Volume XX

ST. LOUIS, MO., DECEMBER, 1923.

NUMBER 12

E. J. GOODWIN, M. D., EDITOR
8529 Pine St., ST. LOUIS, Mo.

PUBLICATION COMMITTEE { W. H. BREUER, M. D., Chairman
S. F. CHILD, M. D.
M. A. BLISS, M. D.

ORIGINAL ARTICLES

TWO STRIKING CASES OF OPTIC NEURITIS AND RETINO-CHOROIDITIS SECONDARY TO ACCESSORY NASAL SINUS DISEASE*

M. HAYWARD POST, M.D.

SAINT LOUIS

The immense amount published during the last few years on the subject of sinus disease with ocular involvement is indicative of the interest it has aroused. My purpose is not to make a review of this entire literature, with which you are familiar, but rather, as I have tried to make the title indicate, to present two striking cases illustrating the operative and non-operative phases of this problem.

There are still those in positions of respect and responsibility who doubt the association of sinus disease with ocular disturbances, in view of which fact we cannot consider the question closed. When, therefore, cases occur in our practice so clear cut in all their details that the evidence points almost without doubt to a nasal origin, they seem worthy of notice as additional evidence for this association. My purpose is to present such data, but especially to point out other more detailed consideration relative to the proper treatment under varying conditions.

Two cases answering this description have come to my attention during the past few years. One is of a sensational type wherein recovery follows immediately on the heels of operative interference, and the other one in which an unmistakable diagnosis can be reached and recovery effected without operation.

Case 1. R. D., male, age 16, was first seen July 7, 1919. He complained that for six days there had been some aching of the right eye and that for three days the vision of this eye had been somewhat blurred. There had been no headaches.

The past history contained nothing of interest other than that for two months previous he had frequently been swimming and diving in an artificial pool. His surroundings and way of living were the very best. His general health was good. There had been no previous ocular trouble. Without correction O. D.

vision 20/96 eccentric. O. S. vision 20/15. There was three diopters swelling of the right disc with blurring of the margins. The vessels were buried in this infiltrated edematous nerve tissue, so that none could be traced through their entire course. The veins were quite congested and there were two minute hemorrhages lying over the disc. The vitreous was somewhat cloudy. In the left eye there were three old quiet spots of choroidal atrophy.

A general examination showed Wassermann and tuberculin tests negative, and the urine negative for albumen and sugar. The heart action was normal with a blood pressure of 122 mm. of mercury. There was marked congestion of all the nasal mucous membranes obscuring the sinus condition. The nervous system presented no abnormalities and a recent dental examination was completely satisfactory.

Ten days after the first observation the ocular condition remained unchanged except for a slight increase in the minute hemorrhages. The vision remained 20/96. The only positive findings were those of the nasal mucosa, so it was concluded that the causative factor must be in this region and further nasal study showed definite sphenoid and ethmoid sinusitis on the right with a very large adenoid blocking drainage from the former. So on the twelfth day after the first examination a free opening was made into both sphenoid and ethmoid sinuses on the right side. In two days the swelling of the disk was much reduced. The arteries and veins could be traced in some instances through their entire course and the hemorrhages were absorbing. The sinuses were draining freely and there was less inflammation of the nasal mucosa. The patient reported to the office on the sixth day after the operation and vision was found to be 20/60. And for the first time a relative scotoma extending irregularly 30 in all meridians from the fixation point, could be mapped out. Ophthalmoscopic examination showed much less swelling of the disc. The vitreous was much clearer especially in the macular region where an exudate, ragged in outline but clearly defined, appeared now for the first time. On the tenth day, vision was 20/38, and in the macular region a few small exudates radiating from the central lesion appeared. Subjectively the central scotoma had shrunken, especially to the nasal side. By the thirty-third day the scotoma could no longer be made out by the stereoscopic tests.

Seven months later the patient was allowed to return East to school. The disc was normal except for a rather ragged outline due to some choroidal atrophy, the macular region had entirely returned to normal and the vision was 18/15. The patient is still under observation though there has been no further trouble.

This case illustrates many points in a striking manner. First and foremost the nasal origin of the optic neuritis is definitely proven by the rapid recovery after opening the sup-

*Read at the sixty-sixth annual meeting, Missouri State Medical Association, Joplin, May 8, 9, 10, 1923.

purating sphenoid and ethmoid. Of this I can see no room for reasonable doubt. And on examining the more detailed question of treatment which it suggests we find, in the first place, that if these cases can be seen early enough, and the course of the disease arrested before infiltration of the retina and choroid has gone on to atrophy, complete absorption of the exudate with restoration of vision is possible. Secondly, that atrophy sets in very rapidly as is shown by the condition of the choroid about the disc where the inflammation first began.

Considering these facts we must realize that it becomes our imperative duty to decide quickly and early what we shall do under such circumstances. If there is definite, clear cut suppuration of the sinuses and a rapidly advancing ocular lesion, the only justifiable procedure is free drainage by means of operation. But the situation is more difficult where there is an absence of all signs of nasal involvement but a severe rapidly destructive ocular lesion present. Then a rapid but thorough examination should be made to exclude central nervous system, dental, blood and renal disturbances. And in their absence one should not hesitate to open the sinuses as it is quite possible for a very small lesion in the neighborhood of the optic foramen to cause severe ocular lesions while making its presence known in no other way.

The real problem, however, arises when the ocular condition is of a minor nature, but threatens by frequent recurrence to result eventually in permanent damage, with a nasal lesion minor in character, never presenting an active suppurating appearance. The second case is of this nature and derives its peculiar interest from the fact that the patient was a student of ophthalmology who thoroughly understood the situation. He was a trained observer and gave unlimited opportunities for observation. The most minute details of the changing lesion were at our disposal.

Case 2. Male, age 33, first noticed trouble with the right eye August 15, 1919. The previous winter he had suffered considerably with left hemicrania especially marked on arising. Nothing had been done to correct this though a mild dry nasal catarrh was known to be present. Otherwise the past history was unimportant. The patient's personal habits were good. Tobacco was used to a moderate degree.

The ocular lesion was first manifested as a relative paracentral ring scotoma projected upon the fundus of the eyes of patients which he examined with the ophthalmoscope. The outer measurement of the ring so projected was about one and a half disc diameters but at no time could it be measured by the Hauitz test. The scotoma resembled closely the after image seen following exposure to a bright light, such as the sun, and was in fact supposed to be such at this first appearance. There was no treatment at this time. This attack lasted five days after which it disappeared entirely. The acuity of vision in good light

was unaffected but the liminal light perception was considerably reduced during the attack.

Six months later the scotoma suddenly reappeared. This time it was projected as a kidney shaped ring, eccentric with the fixation point, which it included in its lower nasal portion. It was about a disc and a half in diameter in its greatest extent by three quarters in the contrary diameter when measured on the examined fundus. Its long axis tipped to about 60°. Definite metamorphopsia was noticed, straight lines were curved and distorted where they passed through the scotoma. There was no headache at any time. Ophthalmoscopic examination showed distinct congestion at the macula with a flame like appearance extending up and in, not, however, the picture of a definite hemorrhage.

The sinuses were examined and showed that there was some congestion of the nasal mucous membrane but no distinct lesion. On suspicion, however, carbonized alboline was pumped into the sinus, a treatment which was continued daily until the lesion cleared up one month later. A general physical examination was made showing blood, urine, heart and other findings normal. The second day the elongated ring had broken into two smaller ones.

An X-ray of the teeth was made which showed apical abscesses on the first upper left molar and first lower right and left molar. There was a draining sinus from an upper left root abscess, so this tooth was extracted. The upper ring of the scotoma had now disappeared but the remaining ring had filled in at the center, making the interference with vision more marked. The macular congestion as seen by the ophthalmoscope was, however, less.

As the condition on the thirteenth day after the first appearance of the scotoma still refused to clear up, a second X-ray was made and the first lower left molar was removed with great difficulty. The following thirty-six hours sparkling blue lights, which had occasionally been observed during the entire course of the disturbance, became much more marked. But on the third day after the extraction the scotoma was noticeably much less dense and the central clear area was again appearing. Fundus examination showed no macular lesion. Thirty days from the initial attack the scotoma had entirely disappeared. It should be noted that reading and all use of tobacco had been discontinued since the beginning of the attack. Reading, in fact, though the vision with glasses had never fallen below 20/15, had become very difficult owing to the distortion of the lines and blurring in the fixation point. Now, however, reading was resumed without difficulty.

The diagnosis was made of a macular hemorrhage due to apical tooth abscess, though it was thought that a sinus condition secondary to the apical abscesses was the immediate cause.

No further trouble occurred until one year later when the scotoma suddenly reappeared. Smoking, which had been resumed to a limited degree, was immediately discontinued and the nasal treatment was reinstated. Roentgenograms of the teeth were negative. The lower right molar had recovered its normal structure. The general condition of the mouth was quite satisfactory. The dental factor in this attack thus eliminated, a nasal operation was considered, but recovery from the previous attack made it seem safe to observe the condition and wait developments. Nasal treatments therefore were continued and gradually the condition became less and less marked. Complete recovery followed in about four months, after which time the patient resumed his regular way of living, being careful, however, to avoid over fatigue and late hours. He has given especial attention to exercise during the confining winter months and the least suspicion of colds or

nasal disturbances have been carefully watched. So certain is he himself of the nasal origin of this disturbance that he has resumed the use of tobacco even in the form of cigars which until about five months ago he had not smoked since the first attack.

From study of this case we must conclude that a number of factors have been at work to produce the condition. A low-grade sinusitis secondary to dental infection was undoubtedly the immediate cause in the first and second attacks. Extraction of the teeth removed the primary agent and reduced the toxemia to a point where the reparative processes were able to overcome the disturbance. The third attack was due to a general lowered resistance when the tide of remaining toxemia was sufficiently great to result in a renewed sinus infection and a breaking down of the weakened ophthalmic structures.

In view of these facts, I should answer the last proposition as to whether we ought to adopt radical measures when faced by recurring ocular lesions with no clear cut intranasal indications in the negative. These cases, however, should be carefully watched, remembering that the burden of responsibility is upon the oculist and if a malignant tendency develops during the course of the attack or repeated attacks show an increasing susceptibility leading to the conclusion that the inevitable result will be destructive, the radical procedure should be instituted, as many splendid results have been obtained by such measures.

In conclusion then let me point out again that I believe we have here further evidence of the relation of ocular lesion to accessory nasal sinus disease; and, furthermore, the first case points clearly the demand for early radical treatment where the indications are definite, while the second case warns us that the promiscuous opening of the sinuses is unjustifiable.

520 Metropolitan Bldg.

DISCUSSION

DR. WM. F. HARDY, St. Louis: All of us doing eye work occasionally meet with such cases as Dr. Post has described. An ocular pain or inflammatory condition may co-exist with rhinological pathology but it does not necessarily follow that the eye condition is the result of the nasal trouble. Conservative rhinologists take note of this and do not do anything radical unless there is a well defined reason for so doing; unfortunately all rhinologists are not conservative. The indiscriminate ripping out of ethmoids and sphenoids should be discountenanced; operation is to be considered only after a thorough study of the case and definite reasons have been developed.

There are a number of cases of eye disturbance in which no apparent rhinological pathology exists, yet conservative treatment of the nose results in improvement of the eye condition. I have in mind a recent case of optic neuritis, carefully examined by one of the most able St. Louis rhinologists who was unable to elicit anything of a definite pathological nature in the nose. Daily shrinking of the

nasal mucous membrane was accompanied by a steady return of vision which up to that point had been gradually failing. All other possible etiological factors had been excluded. It may be argued that this was an example of coincidence, so likewise may be a definite co-existing nasal and ocular diseased condition.

Speaking from the standpoint of an ophthalmologist, my plea is for rational conservatism, preserving all nasal structures from needless sacrifice but showing no hesitancy in advising radical work when the indication is clear and the integrity of vision is at stake.

DR. ISAAC D. KELLEY, St. Louis: As a rhinologist I am very much interested in these conditions. The oculists often confront us with serious problems difficult to solve. Many ocular lesions for which they have no explanation are sent to the rhinologist for solution.

It would not be difficult for all rhinologists to arrive to the same diagnosis, provided they used uniform methods of examination and could see alike. We are face to face with a problem which I do not believe is very thoroughly understood and appreciated by many men attempting to do nasal accessory sinus work. In the first place if we are going to make any headway in these nasal conditions causing ocular manifestations we must all make a uniform and careful examination. I feel there is only one way to arrive at a correct diagnosis. We must use a palate retractor, a large laryngeal mirror, and illumination as nearly approximating sunlight as possible to get a clear vision of the entire naso-pharynx. We will then begin to see what the pathology is.

It is absolutely necessary for all rhinologists to use a uniform light in making their examination, yet one laryngologist uses a Welsbach, another an ordinary tungsten lamp, and another a carbon arc light; consequently their findings will differ in these interesting suppurations of the sphenoid and ethmoid where only a film of pus causes a discoloration of the mucous membrane. Anyone can see a suppuration of the sphenoid when a stream of pus is flowing from its osteum, but when we are dealing with a discoloration of the mucous membrane due to the presence of pus it becomes a more difficult matter. If rhinologists are to agree on what they see they must employ the same methods of examination. This is where the trouble lies. Therefore to make a uniform and careful examination we should retract the palate and rely on uniform light for our illumination. I believe the Leitz carbon pencil lamp is as near sunlight as we can get, and if our diagnosis is to be of value it should be used in all examinations of the naso-pharynx.

Dr. Hardy mentioned a case of a woman showing a marked optic nerve neuritis. I saw this case. She was referred to me with an advanced optic neuritis, but as I was leaving town the next day I could not follow its progress. On examination I found in this woman one of those suppurative sphenoidal conditions difficult of interpretation where the naso-pharynx showed only a yellow discoloration and thickening of the mucous membrane about the ethmophenoinal fissure. In my mind it was an absolute clear cut sphenoidal suppuration involving the optic nerve and like many such cases at the end stage of the suppuration likely to be followed by immediate improvement in sight and the return of the optic nerve to normal. From a rhinological point of view we find not infrequently that the examination alone will be the incentive to almost immediate recovery, because in examining these cases we must often anesthetize the palate and naso-pharynx and follow the examination by cleansing the nasal vault, thus

producing an after effect on the sinuses sufficiently healing to cause almost immediate recovery.

Dr. M. HAYWARD Post, St. Louis: I am glad that Dr. Hardy and Dr. Kelley brought out this point about the treatment of these cases that show no definite pathology. It is certainly true that we do find our ocular lesions clearing up under treatment where we do not seem to be able to determine the nature of the pathology.

I cannot speak from experience concerning Dr. Kelley's remarks, as I have little opportunity for rhinological observation, but I do believe with Dr. Kelley that the more we observe these obscure cases the fewer shall we have to place in the undetermined category.

CARDIO-VASCULAR SYPHILIS

PAUL F. STOOKEY, P.A.S.(R.) U.S. P.H.S.

KANSAS CITY, MO.

In the light of our present day knowledge of the vascular changes produced by the invasion of the heart and great vessels by the treponemata pallida, it is of intense interest to review the pathological literature of the pre-Wassermann days. One is impressed by the accuracy of the pathologists in the recognition of syphilitic changes in the great vessels. Certainly the advent of the Wassermann and the discovery of treponemata pallada gave the clinician a clearer insight into cardio-vascular disease. And a careful study of such cases on the post-mortem table has greatly enhanced our knowledge of the vascular manifestations of syphilis. If a degenerative process in the vessels is attributed to syphilis the treponemata pallida should be demonstrated in that tissue. Many of these problems have been definitely solved, some few require further investigation to establish definitely their relationship to syphilis.

When the organism infected with the treponemata pallida reaches that stage in the evolution of its syphilis that secondary manifestations occur, in short, when the treponemata pallida is disseminated from the local focus by the blood stream throughout the body, which fact is announced by secondary manifestations and a positive Wassermann, then the heart and great vessels are involved—cardio-vascular syphilis exists.

Erdheim reports the case of a man with secondary syphilis of six weeks' duration who suffered a violent accidental death. Microscopic examination of his aorta showed the characteristic round celled infiltration with degeneration of the elastic tissue in the media and the treponemata pallida was demonstrated *in situ* by Levidititis method.

To the clinician who is at best an occasional pathologist, the manifestations of syphilis of the heart muscle produce many perplexing problems. One must consider the damage done by the invader in the muscle tissue by its

presence plus the manifestations of degeneration produced by the increased demand upon the heart muscle in aortic incompetency. The characteristic feature that is so striking in the manifestations of syphilis of the aorta unfortunately is not in evidence upon gross inspection of the heart. If the aorta shows the characteristic lesions of syphilitic degeneration of its media, one is led with considerable justice to assume that to a degree the existing cardiac pathology is due to the presence of syphilis. If the existing syphilis is of comparatively recent date, the aorta may show on gross examination an extensive involvement, while the cardiac muscle on gross inspection be apparently normal. More frequently the characteristic lesions are present in the aorta and the heart shows hypertrophy and a varying degree of fibrosis.

To Homer J. Wright of Boston and Warthin of Ann Arbor is due our present knowledge of the microscopic pathology produced by the invasion of the heart muscle by the treponemata pallida. In Warthin's original article comprising a large series of cases, representing both acquired and congenital cardiac manifestations of the disease, the gross and microscopic findings are reported in detail. One of the most impressive statements embodied in his original report, is the demonstration of the treponemata pallida in the heart muscle by the Levidititis stain, in an organ that on gross examination showed no pathological changes. This fact recalls to the mind of the clinician Fournier's assertion "that syphilis sleeps, it never dies." Warthin describes parenchymatous degenerative changes and a more chronic interstitial type associated with fibrosis. Both types showing the presence of treponemata pallida by Levidititis method.

A localized syphilitic process may attack the wall of the left ventricle and so damage the cardiac muscle that an aneurysmal dilatation of the ventricular wall subsequently develops in the damaged muscle. Microscopically the structure is that of a gumma.

That syphilis and aortic disease were frequently associated was a pre-Wassermann observation of the older clinicians. Our present conception of the pathological changes characteristic of syphilis in the cardio-vascular system dates from the original description of Doeble and Heller. Syphilis is described as a disease of connective tissue the truth of such description is well illustrated in the pathology of the aorta. The process is most marked in the beginning of the aorta and the arch, being less in evidence as the great vessel reaches the diaphragm, where in the usual case, the characteristic lesions disappear, the aorta being smooth in its abdominal part and glistening in appearance. This is in contrast to atheromatous

degenerative processes, which attain their maximum of development at the bifocation of the aorta and shows no special predilection for the arch. Exceptionally syphilitic disease with aneurysm is present in the abdomen, however, in a vast majority of cases the characteristic lesions are localized above the diaphragm. The gross appearance shows numerous depressions which are difficult to describe. Steork compares these depressions to the striae of pregnancy present on the abdomen of the multipara. The comparison is fairly accurate both as to appearance and histological pathology. Over these depressions the intima is of almost normal appearance, or if the process is of considerable duration, the intima may show some attempt at compensatory hypertrophy. The depressions are produced by the rupture and disintegration of the elastic tissue in the media. Each depression representing a potential aneurysm. The degeneration of the media also produces a wrinkling of the intima characteristic of syphilis. This fact is exaggerated in preserved specimens, and while it undoubtedly exists anti-mortem, the dehydration of the tissues after death intensify this characteristic manifestation. Calcification is never present, and if found represents an associated atheromatous degeneration. The aortic ring is generally dilated and frequently the arch shows dilatation of a variable degree; aneurysm may be present. The characteristic loss of elasticity that must be present when one considers the extensive degeneration of elastic tissue in the media, may go to explain the shortness of breath, pain and mediastinal discomfort so prominent in the history of the early clinical cases of aortitis.

Aneurysm develops in the depression formed by the rupture and disintegration of the elastic tissue. Occasionally the intima will be dissected up along with half of the media by the blood stream and dissecting aneurysm be produced.

A small round celled infiltration with plasma cells and an occasional multi-nucleated giant cell are found in the media and adventitia. The vaso vasorum show an extensive infiltration and marked deformity. If the elastic tissue is stained one is impressed by its markedly degenerated appearance in the media showing clumps and interrupted groupings of degenerated elastic fibers with a repeated irregular interruption of continuity.

It is customary in the consideration of the pathology of cardio-vascular syphilis to describe syphilitic pericarditis and endocarditis. I believe the endocarditis to be of secondary importance from both a clinical and pathological standpoint. Clinicians and pathologists alike have long associated syphilis with

the aortic valve. On post-mortem examination the aortic valves are frequently sclerotic, slightly thickened and generally incompetent. The ragged, irregular deformity of the valve so characteristic of infective endocarditis, is always wanting. The valvular margins are smooth and the major part of the incompetency is produced not by the valves, but by a dilatation of the entire aortic ring. Even the presence of slight thickening and stiffness with adhesions between the valve cusps at their attachment to the aortic ring, all of which is generally present post-mortem in the cardiovascular syphilitic, one must search further for an explanation of the entire lack of diastolic blood pressure which is so often the outstanding anti-mortem clinical feature. In a given case who has lived for considerable time with a diastolic blood pressure that cannot be read, one is impressed by the slight post-mortem deformity in the valve cusps, and must conclude the incompetency is due to a large degree, not to the deformity of the valve segments, but an incompetency produced by dilatation of the entire aortic ring. I believe that the association of syphilis and the aortic valve is produced, not by the deformity of the valve segments, but by the degenerative process in the elastic tissue of the aorta, with dilatation of the first part of the aorta, and the aortic ring.

The importance of syphilis in association with angina pectoris has led to an extensive literature on the changes produced in the coronary vessels by syphilitic infection. The process is identical with that occurring in the aorta. As in the aorta, the process is one of elastic tissue degeneration. The anatomical structure of the first two or three centimeters of the coronary vessels is similar to that of the aorta. The media shows much elastic tissue at the origin of the vessels, hence the pathological process with its predilection for connective tissue is to an astonishing degree confined to the first, second or third centimeters of the vessels.

The changes are often extensive and exactly similar in gross and microscopic appearances to those previously described in the aorta complicated by the fact that the openings of the vessels are markedly constricted and deformed by the dilatation of that part of the aorta from which the coronaries arise. Thus is produced a deformity that markedly interferes with the nutrition of the heart muscles. This pathological fact is frequently encountered in the post-mortem examination of cardiac syphilites following sudden death.

The calcification and obliteration of the lumen of the coronaries so frequently seen post-mortem in anginal subjects, is in the light of our present day knowledge, not attributable

to syphilis. While many of the cases presenting an obliterating endarteritis with calcification may be associated with syphilis, the presence of the calcification excludes the possibilities of attributing the existing pathology to a syphilitic degenerative process.

Cardio-vascular manifestation of syphilis occurs at any age, but is most frequent in young adults. Males are afflicted with greater frequency than females, the ratio being four to one. The negro shows a marked susceptibility. Physical strain is a frequently associated factor. The absence of the history of rheumatic fever or an acute infection is conspicuous in the history of every case. Clinically the findings vary over a wide field, in a beginning syphilitic degeneration of the aorta the findings are slight. The subjective symptoms are of unusual severity and include pain precordial or mediastinal, frequently paroxysmal in character, which may be associated with dyspnoea and is frequently nocturnal. Physical examination at this stage shows no inkling of the developing condition other than some slight anomaly of the aortic sound. Fortunately the Wassermann is positive in a higher per cent of cases, and often gives the clinician a true understanding of a developing pathology. Subsequently as the aortic valve becomes incompetent the symptoms are characteristic, the high pulse pressure, Corrigan's pulse, diastolic murmur, widespread arterial pulsation, most marked in the carotids, and the heaving impulse of the heart against the chest wall, all indicate an incompetent aortic valve. Pulsation at the right second interspace is frequently present.

The murmur and the blood pressure are of special interest. At the London National Hospital for Diseases of the Heart, the high systolic blood pressure so characteristic of aortic incompetency is interpreted as an attempt to maintain an adequate blood pressure in the important centers in the brain and not as a manifestation of peripheral arterial disease. The same observers call attention to the marked discrepancy of the systolic blood pressure in the leg and arm in aortic incompetency. Not infrequently the systolic reading in the femoral artery will be from twenty to one hundred m. m. of mercury higher than that obtained in the brachial artery.

The murmur is soft and blowing, diastolic in time and occasionally difficult to hear. In my experience it can be heard over both the aortic and pulmonary area with equal intensity. One may be confronted by the murmur described by Austin Flint. Much has accumulated in the literature concerning this murmur and its mode of production. I have found it to present widely different characteristics in my cases. In the presence of an unusual murmur, of

difficult or impossible interpretation, one should turn to the pulse and blood pressure for evidence of aortic incompetency, as an aorta so damaged as to produce this murmur has, in my experience, always been associated with the characteristic signs of aortic incompetency. The discussion of the physical diagnosis of cardiac disease and aneurysm does not fall within the scope of this paper. However, if the clinician will demand, stereoscopic roentgenograms of the heart and aorta in every case of cardiac disease, beginning aneurysm will be more frequently recognized. It is important to not only study the flat plate but to look behind the aorta with the fluoroscope, which procedure if adopted as a routine, will occasionally save a diagnostic error. The Wassermann is a valuable diagnostic aid and is, fortunately, positive in a high percentage of cardio-vascular disease due to syphilis. However, it is not amiss for the clinician to recall that in the presence of aortic incompetency in a young adult who has never had rheumatic fever the therapeutic test is our most accurate method of establishing the presence of syphilis. In my cases of cardio-vascular syphilis I have been impressed by the lack of clinical evidence of associated involvement of the central nervous system.

The clinician should recall that a syphilitic disease of the cardio-vascular system is a progressive degenerative process and the prognosis is at best uncertain. One may, by careful consideration and survey of the history, duration, physical and laboratory findings, after the individual's response to treatment has been ascertained, hazard an opinion with a certain degree of prognostic accuracy, ever recalling that sudden death is a frequent termination of aortic disease. Cases presenting but few physical signs may terminate in death in an incredibly short space of time. In aorta, with a diastolic murmur, Corrigan's pulse and cardiac hypertrophy, may show marked subjective improvement under treatment and lead an active and useful life over a long period of years.

Experience teaches certain prognostic facts that should be carefully considered in offering a prognosis in cardio-vascular syphilis. Tachycardia in aortic disease of syphilitic etiology is generally indicative of a markedly degenerated heart muscle. Auricular fibrillation is not so common as in mitral disease, but once established is permanent and an irregular pulse with positive clinical evidence of aortic disease, offers a bad prognosis. Attacks of angina pectoris with pain radiating down the left arm to the thumb and little finger are forerunners of a sudden fatal termination. In marked contrast to this, the clinician frequently encounters cardio-vascular syphilites with precordial pain, paroxysmal in character, which

disappears under anti-syphilitic treatment. These cases that show marked improvement or complete recovery from pain, under specific medication, never experience the radiation of pain to the thumb and little finger nor the impending sense of death so characteristic of the fatal cases of angina pectoris. The pain may be on exertion referred along the sternum into the neck and of such severity as to totally incapacitate the patient, subsequently to completely disappear under specific treatment. The age of the patient and the duration of the syphilitic process are to be carefully considered from a prognostic standpoint. Young adults respond to treatment to a greater degree than those advanced in years. The duration of the existing syphilis is a factor of immense importance. As a rule the younger the syphilis the more marked is the response to treatment. True syphilitic aneurysm is a progressive affair and does not show the marked improvement under treatment that the clinician so often experiences in aortitis. Although the subjective improvement under proper treatment is often marked and considerable evidence is accumulating to show that the progressive nature of this process can often be inhibited by judicious treatment.

Specific medication in cardiac-vascular syphilis demands the utmost caution. The administration of potassium iodide and mercury are rarely followed by untoward affects, neo-salvarsan while powerful and efficient as a therapeutic weapon, is at times a two-edged sword. Occasionally the clinician is confronted with a cardio-vascular syphilitic generally advanced in years, who following the administration of neo-salvarsan experiences an augmentation of his symptoms which are unfortunately markedly intensified and often progress to a rapid and fatal termination. The explanations advanced to account for this clinical fact are numerous and varied. I believe this is a true Herxheimer reaction and that the biochemical reaction between the treponemata and the administered arsenical are unusual and abnormal, resulting not in the death of the invading treponemata but in edema of the cells surrounding the invader and their rapid degeneration with marked exacerbation of the clinical symptoms. The clinical facts in such cases support this contention. Fortunately such disastrous results are comparatively rare and in my experience have occurred only in those patients who are advanced in years and have long suffered from syphilitic involvement of their cardiovascular system. So constant has been this fact that I have abandoned the use of neo-salvarsan in elderly cardiac patients who have suffered from syphilis for a long period of time.

The burden of the responsibility for the early

recognition of cardio-vascular syphilis falls not on the dermatologist or worker in syphilis, but on the general practitioner. I believe that if the clinician will examine every syphilitic for evidence of cardio-vascular disease and in the presence of any evidence, subjective or objective, utilize the X-ray and fluoroscope along with the Wassermann, the percentage of syphilites with diagnosed cardio-vascular syphilis will be increased. At this point it is well to recall that subjective evidence with a positive Wassermann precede the establishment of signs. Conversely if the clinician will examine every cardiac case for clinical and laboratory evidence of syphilis the end results will show a marked increase of cardio-vascular disease attributed to syphilis. It is of extreme importance that cardio-vascular syphilis be recognized as such, because, untreated, it is a progressive and fatal malady. An accurate diagnosis and its subsequent treatment often arrest the degenerative process in the heart and great vessel and gives to the patient many added years of comparative health and usefulness.

900 Coca Cola Bldg.

THE DIRECT VISION ADENOTOME FOR THE REMOVAL OF ADENOIDS*

I. D. KELLEY, JR., M.D. F.A.C.S.

ST. LOUIS

The technic of adenoid removal with the Direct Vision Adenotome is as follows: Under local or general anesthesia the mouth is widely opened with a gag; the instrument is inserted in the mouth; the posterior portion of the tongue is depressed with the under surface of the hood until above the upper surface is seen the free margin of the soft palate; the instrument is then gently pushed back to the posterior wall and the distal or hood end is raised into the naso-pharynx; the small ridge on the edge of the upper hood surface automatically engaging the soft palate border, forcing it forward on the surface of the hood out of harm's way. The distal end of the instrument is then further raised into the nasal vault until the adenoid is seen to be completely surrounded when looking through the hood and in full vision of the operator. The instrument is then pressed firmly against the posterior wall, the razor-sharp blade pushed closed by means of the thumb plate and the adenoid is completely severed from its attachment, the operator seeing the blade cutting through the adenoid mass. When the instrument is removed, inside the hood, now forming when the blade is closed a cup, will be found the adenoid.

*Read before the sixty-sixth annual meeting, Missouri State Medical Association, Joplin, May 8, 9, 10, 1923.

Indications for the direct vision operation are found in all cases where a complete surgical adenoid removal is desired. There are no contraindications to its use. Occasionally we find deep depressions on the posterior wall above the second cervical vertebra which the blade of this instrument running as it does in a rigid arc, cannot reach, but this cannot be advanced as a contraindication because even the blade of a curette used in the old operation is fixed between two rigid arms and because of their interference must traverse in its descent the same rigid arc. Therefore, to remove the remaining adenoid tissue in these depressions it is necessary to use a narrow curette or biting forceps which can best be done under direct vision through the hood of the direct vision adenotome. In several hundred observations we have found these depressions in only two cases, making it, if a difficulty, only negligible and easily combated. In cases where the vault of the nasopharynx is unusually high the use of the direct vision adenotome again has no contraindication if the technic of its introduction into the nasopharynx is properly carried out by feeling the definite resistance offered by the posterior superior border of the nasal septum and seeing the adenoid in complete vision.

When fragments of adenoid tissue are found not to have been removed from the vault the resistance of the soft palate muscles is mistaken by the operator for the resistance felt when the upper distal border of the instrument comes in contact with the posterior superior border of the septum. Consequently, the vault has not been reached or the adenoid completely surrounded and in full vision as sometimes happens when the palate is not relaxed. Too, if the operator releases his wrist tension when pushing the blade home the palate tension will force the cutting surface of the hood into a lower position on the posterior wall, thus permitting an upper unsevered portion of the adenoid to remain in the nasopharynx. With careful scrutiny of the adenoid in regard to complete vision during the cutting process, this error in technic should not occur.

Experience has shown in cases where both tonsils and adenoids are to be removed that the direct vision adenotome is to be used first, because the field of operation is unobscured. The tonsil operation with the Sluder¹ technic is so definite and as we have only one bleeding field to obscure the tonsil removal and cause symptoms of blood asperation, the removal of the adenoid should be the first operation done. However, in those unusual cases where the tonsils are so large that the introduction of the adenotome into the nasopharynx is impossible, the tonsils are first removed, the momen-

tary gush of blood from the two operated fields allowed to check and the direct vision adenotome then introduced and by sponging the inside of the hood free of blood full vision is permitted to complete the adenoid operation.

Frequently in clinics the use of the direct vision adenotome will reveal a wrong previous diagnosis. Cases are found where the presence of adenoids is not noticed and the tonsils alone advised removed. Again, adenoids are often diagnosed and their presence does not exist, resulting in needless destruction of normal nasopharyngeal mucous membrane when the curette is used. With the routine diagnostic use of this instrument it is surprising with what frequency adenoids are found in adults.

The use of the direct vision adenotome is strongly advised as a preliminary diagnostic procedure in all tonsil and adenoid operations. Should adenoids be seen on the posterior nasopharyngeal wall they are removed. If none are present the instrument is laid aside with no harm done.

Figure 1 shows the direct vision adenotome which I have had constructed.² The instrument consists of a hollow shaft or hood, which permits direct vision and serves as a soft palate retractor, the distal or blade end of which when put into position conforms to and rests directly against the posterior nasopharyngeal wall. From the approximal end of the shank extends a hand grip, placed at such an angle to prevent chin or chest interference when gripped and placed in position. On the upper surface of the shank is a shaft to which is attached a flexible blade traversing the cutting surface at the distal end of the hood from below upwards, thus permitting adenectomy under the vision of the surgeon.

There exists a great diversity of opinion and a lack of comprehensive understanding regarding adenoids, because of their indefinite localization and the vague reference made to their structural anatomy found in our text books, due, no doubt, to our previous inability to bring the adenoid into complete view during operation. However, with the direct vision adenotome it is easy to demonstrate that adenoids have a definite location in the nasopharynx. When we find by digital examination what seems to be a wild proliferation of adenoid tissue filling the post nasal space it is by mass extension of the lymphoid units composing the adenoid and not the actual spread or proliferation of its basal attachment beyond easily recognized limits.

I believe that the term "Adenoids" should embrace only that definite mass of lymphoid tissue found on the posterior nasopharyngeal wall, because in direct vision the adenoid removed is taken from a definite location and is

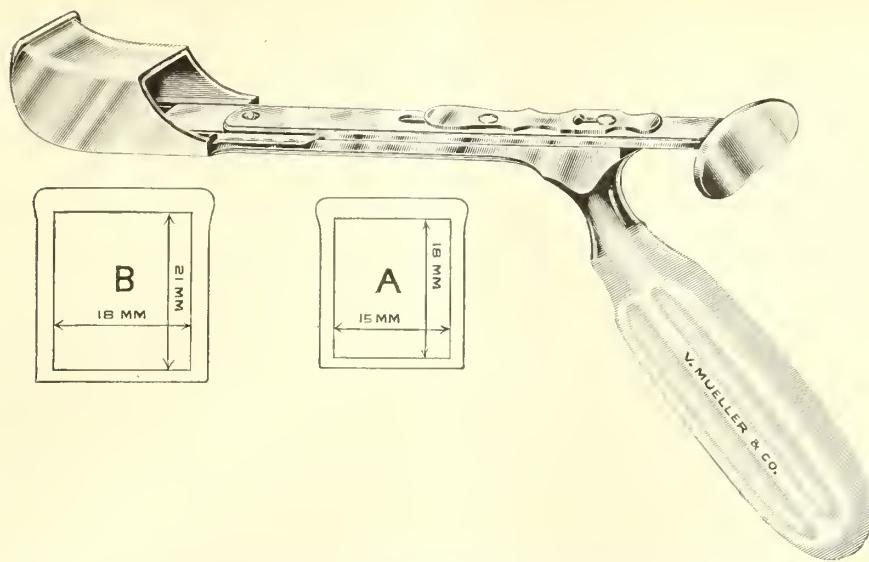


Fig. 1. Direct vision adenotome. A. For children under approximately four years. B. For adults and children above four years.

always well organized. Barnes³ states in his description of the location of adenoids that the larger central adenoid mass occupies the median portion of the posterior nasopharyngeal wall with scattered lymphoid patches extending into Rosenmueller's fossa, often filling it. Adenoids removed with the direct vision adenotome show that when the circumference of the posterior nasopharyngeal wall is completely encircled by the cutting surface of the instrument, the adenoid is entirely surrounded and is seen to be a definitely organized mass easily differentiated from the surrounding mucous membrane. Immediately following adenoid removal a careful digital examination will show the nasopharynx is free of lymphoid obstruction. If we embrace all lymphoid tissue found in this region under the term "adenoids," we should not only include the lymphoid tissue in Rosenmueller's fossa, which is an extension upwards of that part of "Waldeyer's Ring" known as the posterior lymph columns, but must include as well the small isolated lymph patches on the posterior wall. This term cannot embrace all these structures, because we have established the location of a definite encapsulated mass of lymphoid tissue which I feel is synonymous with the nasopharyngeal tonsil. Therefore, direct vision has shown that adenoids have a definite location on the posterior naso pharyngeal wall, extending above to the posterior superior border of the nasal septum, below to the superior margin of the belly of the superior constrictor muscle, and laterally to the posterior lymph columns in the region of Rosenmueller's fossa, as found in hypertrophied adenoids, compared to the smaller atrophic organized adenoids occupying a lesser portion of this area.

An adenoid removed in direct vision shows on its anterior or presenting surface the several units composing its structure and is represented by crypts surrounded by eminences of lymphoid tissue. On the posterior or capsular surface is seen a well organized fibrous capsule with nodules and depressions similar to those found on the tonsil.

A removed adenoid has been likened, because of its supposedly loose construction, to the leaves of a loosely bound book spread apart and suspended, thus causing the leaves immediately to fall and scatter. This figure does not apply to adenoids removed with the direct vision adenotome. The instrument can be so easily placed about the adenoid and such definite pressure exerted on the soft structure of the posterior wall that the blade when it engages is forced behind the adenoid, severing it with its capsule.

The histological structure of the adenoid on section with low magnification resembles that of the tonsil. There is a well-developed capsule from the tunica propria of the mucous membrane with definite fibrous trabeculae descending into the lymphoid mass composed of reticular connective tissue containing countless leukocytes in its meshes, and scattered throughout are the germinal centers or oval rings of lymphocytes. Higher magnification shows more clearly the tunica propria or capsule from which the adenoid is developed; its numerous mucous glands and blood vessels, together with the trabeculae forming the coarser frame work of this lymphoid tissue. The capsular structure is so well marked that it must serve to emphasize the fact that the previous methods of adenoid removal were responsible for much of the seeming lack of organization found in

this tissue. It is possible that were the adenoid confined within a space such as limits the tonsil the loose character would be entirely lost. Certainly the adenoids removed in direct vision with so much of their capsules intact suggest that were it possible to press it from behind through some instrument as we do in tonsil removal, a satisfactory delimiting adenoid capsule could be demonstrated.

The direct vision adenotome permits a study of the adenoid immediately before and during removal. Many interesting forms of adenoid inflammation are seen from the simple blocking of the crypts with debris to exudative follicular adenoiditis. Not infrequently adenoids removed show pus exuding from small openings on their presenting surface, and while the adenoids are being severed from their attachments long worm-like masses of debris exuded from these openings, partially filling the hood of the adenotome. Histological examination of these adenoids reveal multiple abscesses occupying the body of the adenoid, and on section we see a pus track connecting with multiple abscesses occupying the center of the adenoid.

Thornwaldt⁴ describes a disease of the adenoid where pus is seen to exude from the median crypt or bursa that has partially closed due to inflammation and the symptoms ascribed to this disease are persistent and recurrent attacks of pharyngitis. The clinical findings in many cases seen at operation under direct vision would suggest much more than a purulent infection of a partially closed bursa described in Thornwaldt's Disease. Microscopic examination revealed a purulent abscess formation involving the major portion of the adenoid. This, together with the quantity of pus evacuated at operation could produce the same symptoms as pus absorption from the tonsils, teeth, or focal pus infections elsewhere in the body. As a further proof that the median adenoid crypt or bursa is not a necessary factor in the production of these abscessed adenoids, adenoids were removed in which an opening was found to the side of the median crypt from which at operation an unusually large quantity of pus was expressed, and on section the multiple abscesses occupied the body of the adenoid superficial to its capsule and had no connection with the nasopharyngeal bursa.

Where no adenoids are present it is possible with the direct vision adenotome to study the smooth, glistening velvet like mucous membrane of the superior post nasal wall in contrast to the mucous membrane below covering the superior constrictor muscle, which forms, when the superior constrictor is contracted, a raised border representing the upper edge of the muscle extending horizontally across the posterior nasopharyngeal wall with perpendicular

rugae running into the pharynx. It is this upper raised border of the muscle which is cut into and the rugae stripped during the curette operation when inspection reveals tags hanging in the throat after adenoid removal.

608 Humboldt Bldg.

DISCUSSION.

DR. HAYWARD POST, St. Louis: I want to stress one point about the use of this instrument: that is its value in the diagnosis of adenoid pathology.

I was fortunate enough to send a case to Dr. Kelley recently where there was ocular involvement. With this instrument he was able to see pus exuding from the adenoid and it was removed with prompt clearing up of the ocular symptoms. This disturbance had been missed by the older methods. I think this is an important feature of the instrument.

DR. GEORGE S. DOWELL, Braymer: I have enjoyed this paper of Dr. Kelley's very much. I believe this adenotome is going to fill a long-felt want. I have been doing this work a good many years, in a small way, possibly. There were lots of times I felt the need of something like this. Our old instruments have not been what they should have been.

The Doctor spoke of adenoids in an adult. It has always been my practice if I did not know that the adenoids were removed, even if it were an adult, on suspicion of their being adenoids, I went ahead. Sometimes I got adenoids and sometimes I did not. I recall one case of a lady of forty-five with large adenoids. I just suspected they were there. Something to enable us to do this before we have a bloody field would be a wonderful thing. I am very much interested in the instrument.

DR. JOHN H. TIMBERMAN, Chillicothe: I feel like the usefulness of this instrument is very patent—that it is a real contribution in throat work. We have had some injuries with instruments formerly in use by dissection of the Eustachian opening. Making this a visible field certainly is a very marked improvement over anything we have done before. I feel we should especially commend the paper and appreciate the instrument that is described in it.

DR. J. ELLIS JENNINGS, St. Louis: I was very much interested in Dr. Kelley's instrument, which I had never seen before this morning, when he explained its use to me.

In the usual method of operating for adenoids and tonsils, the tonsils are removed first. The main thing is to get every bit of tonsil tissue before the adenoids are removed. After you remove two tonsils the throat is in a pretty bloody condition, and all you can do then is to put your finger in, feel the adenoids and take your curette and swipe around in a more or less uncertain way until the post-nasal space is clear.

With this instrument, it occurs to me that it ought to be a separate operation. If I should use Dr. Kelley's instrument I would want a nice, clear field, and would take out the adenoids before I touched the tonsils.

I want to ask Dr. Kelley whether it would be desirable to make one operation for adenoids, and a few days later take out the tonsils, having a clear field in both instances. The beauty of this instrument is that you can see what you are doing, but you cannot see if the throat is filled with blood.

DR. KELLEY in closing: The doctor mentioned the frequency with which adenoids are found in adults. Our experience with the direct vision adenotome, used before tonsil removal, is that it is very striking to note the number of adult cases in which adenoids are found. The doctor stated he found an

adenoid in a woman of forty-five. We find them in patients even older. It is very seldom—extremely rare, as a matter of fact—with this instrument when used diagnostically, not to find a remnant of adenoid in the naso-pharynx in practically all cases coming to tonsil operation irrespective of age. The purulent cases shown you are a comparatively frequent finding in adenoids removed from adults.

I have advocated all along the removal of the adenoid first with the direct vision adenotome, because I have felt that the old adenoid operation was no credit to the field of laryngology. It was a blind operation and, necessarily, because of the blind technic, made for a chance removal. If a man had mechanical ingenuity enough to develop a technic he could get by with it; but at most it was fraught with blind uncertainty.

The point that made me curious to develop a surgical adenoid operation was that I saw no reason why there could not be a direct vision solution to this problem. It meant only getting into the naso-pharynx on a straight line; demonstrating that the old blind right-angle idea was unnecessary.

I remove the adenoid first because you have only one bleeding field to obscure vision and there is only a momentary gush of blood that stops quickly. I have not in hundreds of these cases seen a hemorrhage resulting from an adenoid removal with the direct vision adenotome. If we have a post-operative clean field free of tags, such as this instrument gives, bleeding is minimized and hemorrhage should not occur. I attribute the lack of hemorrhage to the definite removal of the adenoid without injury to the adjacent structures; therefore I suggest adenoid removal first.

If we desire to do a slow tonsil dissection we wait until after that momentary gush of blood from the adenoid field is checked then with sponging or by the use of a blood aspirating machine we can get immediately an absolutely clean field for our tonsil operation. Those of us who do the Sluder tonsil operation find its technic so certain that a smear of blood does not interfere. Those of you who watched me work yesterday saw that I did not even sponge after the adenoid removal. As a matter of fact, the tonsils were out before the field was obscured by blood from the nasopharynx. Those who cannot work quite that fast should turn the patient on the side for a moment and then sponge the mouth free of blood or use a blood suction apparatus and the field is made clear for any tonsil operation desired.

If the tonsil operation is done last the field is not obscured. If the tonsils are removed first there are two fields producing this bloody smear, so that the time necessary to check the bleeding is naturally longer.

I do not see any reason to do the adenoid and tonsil removal in two stages.

Another interesting thing that caused me to realize that there must be a better surgical procedure for the removal of adenoids was the injury to the palate and uvula and vertebral column. We have all seen pieces of bone from the protruding body of the second cervical removed with the adenoid, the uvula cut off, and the palate injured. It cannot happen with this instrument. The palate is taken care of automatically. If there are no adenoids on the posterior wall, the blade will not injure the mucous membrane. If there are adenoids there, they are shaved off with their capsules. We have removed adenoids one-eighth of an inch in thickness with this instrument.

BIBLIOGRAPHY

1. Sluder, Greenfield: Tonsillectomy, C. V. Mosby Company, St. Louis, 1923.
2. Kelley, I. D., Jr.: Direct Vision Adenotome, Journal Am. Med. Assoc., Vol. 79, p. 300, July 22, 1922.

3. Barnes, H. A.: The Tonsils. Mosby Company, 1914.
4. Thornwaldt, G. L.: Ueber die Bedeutung der Bura Pharyngeal, etc., Wiesbaden, 1885.

COMMON MISTAKES IN THE TREATMENT OF POLIOMYELITIS*

J. EDGAR STEWART, M.D.

ST. LOUIS

In 1911 O'Reilly made a very careful survey of the prevalence of infantile paralysis in Missouri and found that during the preceding six years six hundred and thirty-five new cases had developed, or approximately one hundred new cases a year. As only eighty-one of this number died and as a majority of such cases have a greater or less degree of chronic residual paralysis, they present a cumulative problem for study.

The phase of this problem that first suggested itself for presentation to this Association dealt with the treatment of deformities and instabilities of the lower extremity, but as it is obvious that the commonest and most serious mistake in the treatment is the failure to take active measures to prevent the development of deformities, it was decided that this phase should be given particular emphasis before the treatment of deformities was discussed. The lower extremities are, mechanically, particularly subject to deformities when muscle balance is disturbed, and while the upper extremities and trunk present some very interesting problems, they are of so different a type that only those involving the lower extremity will be taken up in this discussion.

Immediately following the onset of paralysis in the acute stage of the disease, complete physiological rest is the safest and most logical practice and this can be obtained by splinting the affected parts in such a position that deformities cannot develop. The most practical splint from every standpoint for this purpose is the plaster of Paris cast and if properly applied can be left intact until pain in the extremities has completely subsided. At this stage a portion of the cast can be removed in such a manner that the remaining portion maintains the splinting to prevent the development of deformities, and at the same time muscle training can be started. When pain on movement has disappeared, active measures should be started to rehabilitate the paralyzed muscle groups. Heat and massage to stimulate the local circulation and muscle training for the individual muscle groups affected should be practiced daily. The attempt on the part of the patient to carry through the complete motion of a paralyzed group of muscles,

*Read at the sixty-sixth annual meeting, Missouri State Medical Association, Joplin, May 8, 9, 10, 1923.

not only has a beneficial effect on the muscles themselves and on the circulation of the part, but stimulates the affected nerve cells in the spinal cord. For this reason care should be taken not to force exercise to the point of fatigue, thereby overstimulating the diseased nerve cells. This is the chief objection to the use of electrical stimulation—there is no method of properly controlling the amount of exercise and deterioration of the motor neuron may result. The simple measures outlined above can be carried out by the family physician in any community and will prevent more than fifty per cent. of the deformities which if allowed to develop will require operative measures for correction.

A common mistake is to allow weight bearing too early. Even with properly fitting braces, too great strain is borne by the weakened muscles and much more complete recovery will be obtained if weight bearing is postponed until muscles are nearly normal in power or until after several months' consistent muscle training there seems to be little improvement in their strength. The fitting of appliances, when weight bearing is begun, is a more complicated problem and should be carried out under the direction of a physician who understands the physiological and mechanical principles involved. Too often the commercial brace-maker is asked to fit the patient with braces without a definite prescription from the physician as to the requirements in the case and the result is frequently an encumbrance instead of an aid to the patient in learning to get about. When braces are applied, frequent and careful observation is necessary as braces which would seem to give adequate support when first applied, may need frequent alterations to meet conditions which develop when the burden of the body's weight is added to the weakened muscles which for some time have been unaccustomed to this function. After this stage is reached it becomes increasingly difficult for the physician to control the progress of the case but most of the grosser deformities, which the orthopedic surgeon is called upon to deal with at a later date, develop before the period of weight-bearing is reached and it is for such deformities that the medical profession must hold itself responsible.

CORRECTION OF DEFORMITIES

For the correction of these deformities and the relief of instabilities operative measures are often necessary and a great many different procedures have been described in detail. These I do not intend to discuss, but there are certain physiological and mechanical principles which must be observed. Departure

from them may not only subject the patient to an unnecessary operation but may greatly jeopardize his chance of getting a correction with good function.

THE FOOT

The muscles controlling the position and action of the foot are most often involved in paralysis of the lower extremity and the most common resultant deformity is that of equino-valgus, where the foot is abducted at the midtarsal joint and plantar flexed at the astragalo-tibial joint. This involves some paralysis of the adductor-dorsiflexor group of muscles and in nearly all cases is accompanied by a shortening of the posterior leg group and Achilles tendon. Although it is obvious that muscle training applied to the adductor-dorsiflexor group is useless when a shortened Achilles tendon will not allow it to contract, and while it is evident on inspection during weight bearing that the short Achilles acts as a fulcrum to force the foot into more exaggerated abduction, these cases are often allowed to go for years with the offending Achilles bringing about an increase in the deformity and an added strain on the paralyzed adductors. It is not uncommon to see almost complete recovery of power in the adductor-dorsiflexor group and a functionally stable foot and ankle established when a shortened Achilles tendon is lengthened and muscle training carried out with the foot held in the over-corrected position. Yet joint stiffening operations and muscle transference are frequently done before this simple procedure is tried.

The part played by the Achilles tendon in the cause and relief of the equino-valgus deformity must be definitely distinguished from its rôle in other types of deformity where it is shortened or apparently shortened. In the claw-foot type with very high arch, plantar flexion of the fore-foot, dorsi flexion of the toes and inclination to varus deformity, lengthening the Achilles is distinctly contra-indicated until the fore-foot has been brought dorsalward in relation to the os calcis and the cavus in this way corrected. This may be done effectually by freeing the short plantar muscles and fascia from the inferior surface of the os calcis, forcing the fore-foot dorsalward and maintaining it in this position in plaster for several weeks after weight bearing is resumed. Lengthening the Achilles in this type of foot does not correct the deformity and if done before the cavus is corrected, leverage cannot be obtained for forcing the fore-foot dorsalward. This mechanical principle also holds in correcting the equino-valgus type of deformity. Whether a stabilizing operation on the tarsal bones is or is not necessary to maintain correction, lengthening the Achilles

should be reserved until correction of the varus is accomplished. The equinus may then be corrected at a second stage.

THE UNSTABLE FOOT

In a certain proportion of cases the foot remains unstable for weight bearing in spite of effective measures for preventing deformities and the most diligent efforts to restore power in the paralyzed muscle groups. The problem of stabilizing such feet, in view of the title of this paper, brings up the subject of muscle transference. Operations for transferring the tendons of abductors to the mesial side of the foot to take the place of paralyzed adductors, and vice versa, as well as similar procedures for restoring the Achilles pull, are still widely used but I believe that in the vast majority of cases of unstable foot they are futile procedures unless accompanied by stabilized operations on the tarsal bones. Except in carefully selected cases and in the hands of a surgeon experienced in such operations, their value anywhere in the lower extremity is questionable. In a universal joint such as the combined tarsal articulations they should be employed only as an aid to stabilizing operations on the bones.

THE KNEE

Contracture of the hamstring tendons associated with paralysis of the quadriceps is the commonest deformity seen at the knee and is usually accompanied by some luxation of the tibia posteriorly on the femur. Not infrequently this subluxation is greatly increased in amount by efforts to straighten the knee by direct pull in the line of the tibia, either by weight and pulley traction or manually under anesthesia. This can be avoided either by lengthening the hamstring tendons by open operation or by applying a well padded plaster cast from the toes to and including the pelvis, making sure that it fits snugly about the knee. A transverse cut is then made through the plaster directly posterior to the joint and this is carried around each side to the front, leaving only a hinge of plaster anteriorly. The leg can then be extended by gradual traction, and the process aided by placing wedges in the posterior opening as it widens.

THE HIPS

Flexion contracture at the hips which is so often seen in patients who have been allowed to assume this posture during the acute stage of the disease, is not so easily corrected. Traction and forcible extension with appliances is rarely successful in correcting the deformity beyond 45 degrees and an operation is nearly

always required. The operation devised by Soutter in which the muscles arising from the ilium are let down subperiosteally to form a new attachment further down on the bone seems to be the best surgical procedure in this type of case. Cutting through the shortened muscles transversely as sometimes done, incurs the risk of permanent loss of function of these muscles. In the opinion of the writer this method should be discarded.

The errors, both of commission and of omission, which have been referred to are all common ones which are seen quite regularly in any large orthopedic clinic, and are by no means confined to practice in the rural communities. Methods of treatment have been referred to as unsound only when they seem irrational in principle and when observation of their results extending over a long enough period of time to be judged as functional results, proves them to be impractical. To these I should like to call the serious attention of the members of this Association, particularly to the failure to observe the simple measures necessary to prevent deformity in the early stage of the disease.

818 University Club Bldg.

DISCUSSION

DR. R. L. ANDRAE, Louisiana: I was glad to hear these gentlemen mention the factor about letting our patients up too soon. I think there is a tendency, especially among the men who have practised away from the regular hospitals, to be too prone to listen to the anxiousness of the parents to let the children up. Of course, we get those deformities too readily if we let them up.

I got up to speak, not because I have had a great extent of experience in this line of work. I am just a "country doctor," but I have had a little experience with it in my own case. In the days when I had poliomyelitis as a young chap, I think the doctors were only too anxious to get their patients up; and I think I got up a little bit too soon. I had quite an extensive involvement of the left soleus and gastrocnemius group and later a shortening of the Achilles tendon which resulted in a talipes equinus. It was only in later years when I got into medical school that I learned of any procedure that could be done to relieve that deformity. Although I still have atrophy of the calf muscles, as the result of the tendon's lengthening, I can walk flat-footed with less deformity than before I became acquainted with the Orthopedic Department of Barnes' Hospital, Washington University.

DR. M. L. KLINEFELTER, St. Louis: I think every part of the paper should be emphasized, unless it is a point I did not understand in regard to the correction of deformities of the upper extremity. So far as the lower extremity is concerned, I think everything said should be taken seriously, and everybody who treats a child with polio should know practically all that was said. There is one point that should have particular attention, and that is even though these deformities have been allowed to develop, and are a year or two old, correction by operation, particularly by transferring tendons, should not be done until the deformity has been gradually cor-

rected and held in position a sufficient length of time to allow these muscles, which have been at a disadvantage since the time they were completely out, to have a chance to regenerate and redevelop. It is only a few days since I saw a case for the first time in which a part of the tendo-achilles had been transplanted to the peroneus group, and that group was the strongest in the child's leg. The peronei have re-developed in that case. That is a thing that happens frequently, if the muscles are gradually corrected and properly trained. I do not know within what length of time—I should like to hear Doctor Stewart discuss that point—but certainly for a year and probably three years I do not think any tendon transference should be done.

DR. FRANK D. DICKSON, Kansas City: The purpose of discussion is to elucidate the paper, but I think this one does not need any.

I am very glad Dr. Stewart emphasized the two points he did. One was the fact that after attacks of infantile paralysis mothers and relatives like to see children up and about, and the tendency is for the family physician—or family osteopath—to get them up before they should be weight-bearing.

In my acute cases I have taken this attitude: I won't allow them to bear any weight for from six months to a year, keeping up exercises in bed. I have been more gratified with the outcome under this method than with anything I have ever done for them in other ways. I believe there is too much tendency to get these children on their feet when they should be in bed being exercised without weight-bearing.

The second point is that there is no excuse for these tremendous deformities we see following infantile paralysis. Proper treatment is available for all. It adds to the loss of time and expense to have to untangle a case before you can rebuild it. These cases should not be allowed to get into positions of deformity.

As far as the detail of the paper, I think he is sound in everything he said about the various procedures which should be carried out in particular joints.

The big thing to remember is: don't get your patients up too early and don't let them get deformed.

DR. J. EDGAR STEWART, St. Louis: I think all of us who have had anything to do with poliomyelitis agree with Dr. Klinefelter that there should not be any operative procedure except to relieve contractions and deformities—to take the strain off muscle groups that are on a stretch—no operation except that type should be done on a case of poliomyelitis until the paralysis has existed for two years at any rate; because with constant efforts at muscle training over that long period of time we very often continue to get improvement. Personally, I have not seen good results in muscle transference under any other circumstances except where it has been combined with some other stabilizing operation, preferably on the tarsal bones.

RELATION OF NOSE AND THROAT OPERATIONS TO LUNG ABSCESS*

HARRY W. LYMAN, M.D.

ST. LOUIS

The subject of abscess of the lung is of special interest to nose and throat surgeons because of the large proportion of these cases

which have followed operations in the upper respiratory tract, and because it is in this class of cases that preventive measures find their most promising field. Most of the cases have followed tonsillectomies, although they have been reported following operations on the various para-nasal sinuses, septum operations, and especially extraction of teeth under general anesthesia.

Dr. Charles W. Richardson, of Washington, D. C., in 1910, reported a case of septic infarct of the lung following tonsillectomy; and, in 1912, three cases of abscess of the lung after tonsillectomy. As far as I am able to discover, this was the first time attention had been called to this condition as a complication following operations in the upper air passages. Since that time reports of this condition have increased in frequency. In 1921 Fisher and Cohen, of Philadelphia, in reviewing this subject, gathered reports of seventy-six cases. In April, 1922, Dr. William F. Moore, of the Bronchoscopic Clinic of Jefferson Hospital, Philadelphia, published a paper the data for which was obtained by a questionnaire mailed to over a thousand laryngologists in the United States and Canada, to which replies were received from five hundred and eight men, of whom one hundred forty-four reported a total of two hundred and two cases.

Figures such as these and the numerous papers on this subject, lead one to believe that these cases are much more frequent than formerly, or that they are being more generally recognized. I believe both of these factors to be true. There is no question but that the modern tonsillectomy is a more formidable operation than the old tonsillotomy or partial removal of the tonsil. These abscesses may not occur until some time after the operation, and, as tonsillectomy patients (especially in clinics) very often pass from under observation of the operator within a very few days following the operation, the etiological connection between the operative procedure and the subsequent pulmonary conditions was overlooked. After Richardson called attention to this condition, more and more cases were diagnosed, until now, undoubtedly, cases are attributed to nose and throat operations which either existed previous to the operation or had some other definite etiological factor.

The theories of the method of infection of the lung tissue following operations in the nose and throat are three:

1. That the infection is carried to the lung tissue through the lymphatics.
2. That it is carried by infective emboli through the veins.
3. That it is due to the inspiration of infective material through the air passages.

*Read before the St. Louis Medical Society, January 9, 1923.

A great many discussions have been held in regard to the relative importance of these three methods of infection. The consensus of opinion is that lung abscess, caused by infection carried from the upper air passages by the lymphatics, is extremely rare; that abscesses caused by infective venous emboli may occur, but are unusual, and in a large proportion of cases reported as such, the inspiration of infective material has not been excluded; and that the vast majority of cases of lung abscess, following operations in the upper air passages, are due to the inspiration of infective material during or following the operation.

Little can be done to prevent infection through the lymphatics or the veins, but the prevention of the inspiration of infective material into the bronchi presents a very interesting and encouraging field for study.

The general condition of the patient has a marked influence on the susceptibility to this condition. Tuberculosis, diabetes, chronic alcoholism, and recent acute infections of the throat increase the liability to this complication.

The writer believes that one of the most important factors in causing this condition is the abolition of the cough reflex, and, for this reason, the preliminary injection of morphine or other drugs of similar character, so often given as a routine procedure in these operations, is, undoubtedly, a most important etiological factor.

The fact that ether anesthesia may easily be deep enough to remove this safeguard of the larynx accounts for the large proportion of these cases occurring under ether.

Of the seventy-six cases collected by Fisher and Cohen, seventy-four were done under ether anesthesia and two under local. Up to November, 1921, I was able to find records of three other cases following local anesthesia, making five in all on record at that time. Four of these were known to be tuberculous subjects, and this matter was not mentioned at all in connection with the fifth. At that time I was only able to discover one case of lung complication following tonsillectomy under nitrous oxide anesthesia.

This was a questionable case of bronchopneumonia, without the formation of abscess, however, in which tonsillectomy was done a short time after an acute streptococcus infection of the throat and with a preliminary hypodermic of one-quarter grain of morphine. During the operation, owing to the extreme depression of the lower jaw, the patient stopped breathing and the throat filled with blood. As soon as the pressure upon the jaw was relaxed she gave a gasping inspiration which probably

carried blood into the trachea, as the morphine had abolished the cough reflex. This case was also complicated by a post-operative hemorrhage with its attendant manipulation of the traumatized tissue.

In Moore's series of two hundred and two cases the anesthetic used was: Ether, 151; local, 39; nitrous oxide, 8. No mention is made, however, as to whether a preliminary injection of morphine was given. These figures immediately suggest that many cases have occurred under both local and general anesthetic which have not been reported. Of the thirty-four cases under consideration tonight, eight followed tonsillectomy, all done under ether anesthesia.

In the use of nitrous oxide the anesthesia is not deep enough to abolish the cough reflex, and, if blood is inspirated, it is probably immediately ejected, unless morphine has been given previously.

In the Medical Department of Washington University over twenty thousand tonsillectomies have been done under nitrous oxide anesthesia with no cases of lung abscess, and only two known cases of bronchial inflammation, the one mentioned above and one other case in which the medical consultants stated that the condition was probably present at the time of operation. Both of these cases had had a preliminary hypodermic of morphine.

In connection with local anesthesia, Chevalier Jackson, of Philadelphia, states that the larynx may be completely anesthetized by the application of an eight per cent. solution of cocaine to the lower part of the posterior wall of the pharynx; that this causes a complete and perfect anesthesia of the larynx; that the reflexes are totally abolished; and that the vocal cords can be operated upon without exciting either cough or reflex movements.

The writer also believes that allowing the throat to become filled with blood during the operation increases the liability to the inspiration of infective material. Moore mentions the fact that in a relatively large number of cases reported by him no suction apparatus was used.

The following conditions may also add to the possibility of this complication: prolonged operations; undue manipulation of the tonsils; laceration of the fauces; manipulation sometimes necessary in controlling hemorrhage; improper position of the body during operation under general anesthesia; not guarding against the inspiration of blood or vomitus until the complete recovery of the patient from a general anesthetic; failure to use an efficient suction apparatus.

We should take every possible precaution in operations in the upper air passages to prevent such a serious complication as abscess

of the lung, and the following suggestions are made as tending to diminish the possibility of this condition:

That tonsillectomy, especially upon an adult, should not be looked upon as a minor surgical procedure, but should be performed with all the care of other major operations; namely, that it should be done in a good hospital and should be preceded by a careful, general, physical examination of the patient; no preliminary injection of morphine or drugs of similar character should be given because this tends to abolish the cough reflex, which is our greatest safeguard against the inspiration of infective material. If ether is used, the anesthesia should be uniformly light, the patient placed in a position in which the blood cannot flow into the trachea, and an efficient suction apparatus should be used. The same precautions would seem to be indicated in the use of nitrous oxide, although the danger of pulmonary complications following the use of this anesthetic is much less than following ether. If local anesthesia be used, care should be exercised not to abolish the cough reflex, by applying the anesthetic to the posterior pharyngeal wall. After the operation, the patient should be kept on the side, or prone, until consciousness is completely recovered. Patients should not be operated upon too soon after an acute infection. Swabbing and other manipulations of the tonsillar fossae, to control hemorrhage, should be avoided if possible to prevent dislodging a thrombus from the veins. The patient should be kept under observation until all danger of this or any other complication has passed.

The literature on this subject in recent years would lead one to believe that this condition is a very common sequela of operations in the upper air passages, especially tonsillectomies. However, such is not the case. The total number of records of tonsillectomies reviewed by Dr. Moore was about four hundred and fifty thousand; consequently, he estimates that pulmonary abscess occurs only once in every twenty-five hundred to three thousand cases. And the writer believes that by calling attention to the possibility of this complication and adopting proper precautions nearly all of these cases can be prevented.

700 Carleton Bldg.

A NEW URETHRAL SYRINGE

NELSE F. OCKERBLAD, M.D.

From the Department of Urology, The University of Kansas School of Medicine, Kansas City, Kansas.

KANSAS CITY, MO.

The instrument illustrated herewith is an adaptation that I have used in my office for

the past year with considerable satisfaction and, in my hands, has completely replaced the ordinary Guyon and Keyes-Ultzman syringes for deep urethral instillations. It consists of an à boule catheter fitted with a Becton and Dickenson bulb syringe No. 2031. The fitting is done by cutting off the flared open

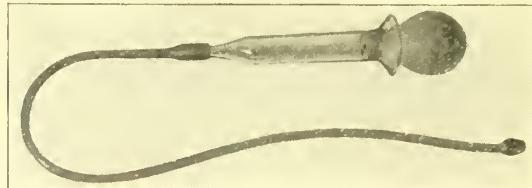


Fig. 1. A New Urethral Syringe.

end of the catheter until it fits the syringe tip tightly, when the two parts adhere and may be left permanently as one instrument. This device has the advantage of being very simple and cheap, but convenient and effective, and in addition to these virtues is easily cleaned and sterilized.

416 Argyle Bldg.

THE MENACE OF THE DIAGNOSTIC THROAT CULTURE IN DIPHTHERIA.—In the interests of clear medical thinking and of our patients, Jesse G. M. Bullowa, Reginald C. Hardman and Harry R. Litchfield, New York (*Journal A. M. A.*, January 27, 1923), emphasizes the fallacies that may result from the throat culture diagnosis of diphtheria, and the consequent delay in making the diagnosis from a laboratory report instead of from the clinical picture. The dangers of depending on the diagnostic culture are presented both statistically and by the report of individual cases.

CHILLS FOLLOWING TRANSFUSION OF BLOOD.—The number of chills which follow transfusion of blood, Richard Lewisohn, New York (*Journal A. M. A.*, January 27, 1923), believes can be reduced by proper blood tests, careful technic, and strict attention to the indications. The percentage of posttransfusion chills is about the same, no matter what method is used. In a series reported, posttransfusion chills were encountered in 23 per cent. after the citrate method, and in 34 per cent. after the Unger stopcock method. Mixture of sodium citrate with blood in the proportion of 0.25 per cent. does not affect the vitality either of the erythrocytes or of the leukocytes.

GROWTH OF INFLUENZA BACILLI WITHOUT BLOOD.—Egg infusion broth has been found by T. M. Rivers, Baltimore (*Journal A. M. A.*, June 18, 1921) to support the growth of influenza bacilli for many generations. Into 250 c.c. of 2 per cent. peptone (Fairchild's water, pH 7.6, three eggs were stirred, boiled one minute, filtered through cotton, and autoclaved in 100 c.c. quantities for fifteen minutes under 15 pounds of pressure. To each hundred cubic centimeters of the autoclaved egg infusion broth were added from 10 to 20 c.c. of a filter-sterilized year's extract, and this mixture was tubed in 10 c.c. quantities under sterile conditions. The medium was incubated forty-eight hours before it was used to be sure of its sterility.

**THE JOURNAL
OF THE
Missouri State Medical Association**

DECEMBER, 1923.

EDITORIALS

MEDICAL SCHOOLS INSPECTED.

The State Board of Health, assisted by Dr. F. C. Waite of Cleveland, Ohio, and members of the special committee of the Missouri State Medical Association, has completed the inspection of the six medical schools in Missouri, viz., the Washington University Medical School, the St. Louis University Medical School, the Medical School of the State University, the Kansas City College of Medicine and Surgery, the Kansas City University of Physicians and Surgeons and the St. Louis College of Physicians and Surgeons.

As soon as the data obtained during the inspection of the medical schools has been compiled; the board will decide which schools are teaching medicine acceptably and which ones are not doing so. The board can then re-establish its standard of the reputability of medical schools and decline to examine the graduates of those schools not accredited. Dr. Waite will return to Missouri about the middle of December and go over the records of the State Board of Health pertaining to the issuance of licenses to practice medicine. In the meantime a census of persons practicing medicine by any system is being taken by the State Board of Health and the State Medical Association and all who are found practicing without a license will be dealt with.

Since writing the above the Board of Health has discredited the St. Louis College of Physicians and Surgeons, the Kansas City College of Medicine and Surgery and the Kansas City University of Physicians and Surgeons. Attorney General Barrett is investigating the records of these schools with the view of suing for revocation of their charters, should evidence of irregularities justify that action.

**VOTE FOR THE HEALTH CLAUSE IN
THE NEW CONSTITUTION**

Members are reminded that the special election on the adoption of the proposed constitution for the state formulated by the Constitutional Convention, will be held February 26, 1924. From the standpoint of public health, physicians will be interested principally in the clause authorizing the legislature to provide means for the protection of the health of the people. The clause reads:

AMENDMENT NO. 5.

To amend Article IV of the Constitution by adding Section 58 thereto, as follows:

Section 58. The General Assembly shall provide means for the safeguarding and promotion of the public health and welfare.

Members will recall that the adoption of this proposal was the center of a bitter attack by the foes of the State Medical Association. The Christian Scientists, The League for Medical Freedom, Antivaccinationists, Antivivisectionists and their ilk led by Dr. Alonzo Tubbs, a member of the Convention from Gasconade County, employed every method within their power to defeat the amendment. A lobby well supplied with money was maintained at Jefferson City during the entire session of the Convention and was directed by persons experienced in legislative activities whose sole object was the elimination of the paragraph relating to the health of the people or to amend it so that it would be innocuous.

The principal factor against this powerful influence was the State Medical Association loyally supported by the County Medical Societies and a large number of forward-looking members of the Convention. The reputable medical profession found many friends who could not be swayed from their support of the measure, notwithstanding the many vicious diatribes against the reputable physician, individually, collectively and as an organized body.

The opponents of this measure have not ceased their activities to defeat it. A well organized movement is being conducted for the purpose of defeating this measure at the polls.

Members may vote on as many of the proposals as they choose, the vote on each deciding its fate. We, therefore, again urge our members to be prepared to cast their vote in favor of this proposal, known as Amendment No. 5 to Article IV, whether they vote for the other amendments or not.

RECLAIMING FIRST OFFENDERS.

A colony for first offenders under workhouse sentence has been established in St. Louis on the recommendation of Director of Public Welfare Nelson Cunliff. These men are to be self-supporting by means of the work they do on the farm adjoining the colony and they will be placed on their honor, with no locks, bars, or guards with shot-guns.

A frame dormitory with accommodations for 50 has been erected. This will be enlarged as the venture grows. The tract on which the colony is now operating is one given to St. Louis by former Governor David R. Francis and will eventually be made into a park. This is expected to take about five years and at the

end of that time the colony will be moved to some other suitable place.

The need of segregating the first offender from the hardened habitue of the workhouse was the prime factor in establishing the colony. If these men are kept away from the degrading influences of the hardened offender it is hoped that they may regain their lost place in society and become useful citizens again since their offenses are often minor ones carrying fines which they are unable to pay.

The colonists will be selected by the workhouse superintendent on the basis of the offenses which they have committed and their conduct and general demeanor.

SCHOOL FOR CRIPPLED CHILDREN AT ST. LOUIS

St. Louis is to have a school for crippled children.

The arrangements have progressed as far as the purchasing of the land and the naming of the approximate cost of the building. A survey of the number of crippled children who would avail themselves of such an opportunity is being made and the size of the building will depend largely on these figures.

The site chosen by the school board is centrally located and is near both the Shriners' Hospital for Crippled Children and the Barnes Hospital orthopedic clinic. This is a great advantage for then the children needing attention or treatment may have it while attending school with little inconvenience or trouble.

Affairs generally are assuming a brighter aspect for the little unfortunates. Not so many years ago they were stay-at-homes, received no education and were truly "shut-ins."

The movement to discover and aid crippled children started two years ago by the St. Louis Medical Society, aided materially by the St. Louis *Post-Dispatch*, has become state wide and is now being supported by the Missouri Federation of Women's Clubs. Through the co-operation of the women and with the assistance of the county medical societies it is expected that every crippled child in Missouri whose parents or guardians are unable to provide for the necessary examination and treatment, will be brought to the attention of the proper authorities and intelligent plans devised for such children to receive the benefits of modern methods of treating and correcting physical defects in the young. Some of the children brought to the St. Louis Medical Society in the past two years have been completely restored to normal condition, while others have been very materially improved. Without this work by the Medical Society and the citizens of St. Louis who co-operated in the undertaking it is probable that these children would have remained permanent cripples.

CAMPAIGN FOR CONTROL OF CANCER

-After two years of a successful campaign of publicity by the establishment of National Cancer Week, the American Society for the Control of Cancer has decided to vary its method of attack this year by extending the educational campaign over a longer period of time, and dividing the country into sections to each of which is assigned a month for its special campaign. The month assigned to Missouri, Arkansas, Texas and other states of the Southwest is from November 15 to December 15. During that time the various chairmen and sub-chairmen will try to arrange meetings, distribute literature and see to the publication of articles in the press that will inform the public regarding the essential facts concerning cancer, especially the importance of investigating suspicious symptoms at the earliest possible moment and instituting the proper treatment.

This public health movement against cancer is more directly under the guidance of the medical profession than those dealing with child hygiene, maternal welfare, tuberculosis or social diseases. The American Society for the Control of Cancer has sought to organize the medical profession not only in each state, but in every county of each state, to spread the propaganda for the control of cancer. In Missouri approximately 50 district chairmen have been appointed, who have been co-operating most loyally with the state chairman, Dr. Fred J. Taussig, in organizing the work in their community. Many of these men have devoted much time and money to furthering the development of this work. In Kansas City last year Dr. E. H. Skinner put over a successful campaign. This year's campaign in Kansas City, in charge of Dr. C. C. Dennie, which for special reasons has been postponed until January 15, will doubtless be equally effective. Dr. Wentker in St. Charles, Dr. Briegleb in St. Clair, Dr. Ravenel in Columbia, Dr. Nowlin in Montgomery City, Dr. Callison in Kirksville, Dr. Miller in Macon, Dr. Rodes in Sikeston, Dr. Chapman in Charleston, Dr. Walker in Cape Girardeau, Dr. Hogan in West Plains, Dr. Cole in Springfield, Dr. H. S. Dowell in Maryville, Dr. Harned in Bethany, Dr. Schofield in Warrensburg and Dr. Doyle in St. Joseph, were particularly active in the work last year. This year the group of physicians deeply interested in the movement is even larger, so that we are hoping to have Missouri stand in the front rank among those States in which the prevention, the early recognition and prompt treatment of cancer is being taught.

NEWS NOTES

THE Engelbach Clinic of St. Louis announces the association of Dr. Barnard J. McMahon with that body. Dr. McMahon will specialize in oto-laryngology, bronchoscopy and esophagoscopy.

THE Board of Trustees of the American Medical Association has authorized the reduction of the annual Fellowship dues and subscription to the *The Journal of the A. M. A.* to five dollars per annum, effective January 1, 1924.

WE note from the *Journal, A. M. A.*, that Dr. Franklin W. Gregor of Indianapolis has been appointed by President Wilbur to fill the vacancy on the Judicial Council of the American Medical Association created by the election of Dr. J. H. J. Upham of Ohio to membership on the Board of Trustees.

THE Missouri Commission for the Blind has made a successful attempt to help the more unfortunate members of society who have eyes but cannot see. The Ways and Means Committee of the Board of Aldermen, at St. Louis, approved a measure permitting cigar stands to be installed in the lobbies of the public buildings, and operated by blind persons selected by the Commission for the Blind. The ordinance was passed and cigar stands have been installed in several of the public buildings.

"DOCTOR PAUL DE MONTE LEONE," of St. Louis, was fined \$100 in the Court of Criminal Correction for practicing medicine without a license. The fine was stayed upon recommendation of the prosecuting attorney's office and Leone was allowed to depart after payment of costs and a promise to return money to persons who had invested in his enterprise.

On November 2 Leone was fined \$50 and costs at Herman for practicing medicine without a license. This time he was seeking members to "Leonic Brothers Club," who it is supposed would take up Leone's weird ideas about "astral self," "concentration" and other ways of curing diseases.

THE Reverend W. F. Robison, President of the St. Louis University, has announced that plans are being formulated to educate students in the high school and collegiate departments of the university free of cost. In order to do away with the tuition fee, the university contemplates raising a large fund, estimated to be \$350,000 annually. President Robison expects

the university to offer free education to about 2,000 students annually when the plans are put into operation. The collegiate department has an enrollment of 589 students this year seeking degrees of Bachelor of Arts, Bachelor of Science and Bachelor of Philosophy. The high school has an enrollment of 683.

The American Journal of Roentgenology and Radium Therapy, the official organ of the The American Roentgen Ray Society and the American Radium Society, will appear in enlarged form in 1924, the increased pages being given to more illustrations, more abstracts and more original articles. Dr. A. C. Christie, who was colonel in charge of roentgenology in the U. S. Army during the war, will be the editor. Dr. James T. Case, Dr. H. K. Pancoast and Dr. W. Duane will be the associate editors with a large collaborating staff of the leading roentgenologists in the country. The subscription price is \$10.00, and Journal will be published as formerly by Paul B. Hoeber, Inc., New York.

DR. WALTER R. MOORE of St. Joseph was one of the recipients of the Resident and Travel Scholarships for Physicians awarded by the American Child Health Association. Fourteen other scholarships were awarded out of one hundred and one applicants.

Dr. Borden S. Veeder, of St. Louis, was chairman of the special committee on awards.

The purpose of these scholarships is, broadly, to stimulate interest in child health work and to provide means for better training of physicians along this line. These scholarships were awarded on the basis of graduation from an accredited medical school, and on evidence of the candidate's real interest in child health work as shown by training and experience.

THE American Association for the Study of Goiter, composed of goiter surgeons, internists, anaesthetists, pathologists and radiologists, will hold its annual meeting in Bloomington, Ill., January 23, 24 and 25.

The 23rd will be devoted to operative clinics, featuring local anesthesia and gas anesthesia. The scientific session will begin the morning of the 24th.

Among those upon the program are Doctors Andre Crotti of Columbus, Ohio; William Seaman Bainbridge of New York City, W. Wayne Babcock of Philadelphia, F. H. Lahey of Boston, Wm. Englebach of St. Louis and Dr. Lloyd Arnold of Chicago.

Those interested should communicate with Dr. E. P. Sloan, President, Bloomington, Ill., or

Dr. Judson D. Moschelle, Secretary, Indianapolis.

THE new Surgical Hospital just added to the group of buildings comprising State Hospital No. 2 at St. Joseph is one of the best of its kind in this part of the country, according to visitors who attended its opening on October 3. It is two stories and a basement and has a capacity of forty beds and has been erected at a cost of about \$125,000. It serves about 2,000 people, including patients at the institution and attendants.

There are four operating rooms, which are manned by a staff of surgeons and physicians from St. Joseph. There is a very finely equipped X-ray room. Furnishings such as chairs and rugs were to a great extent made by the patients in the institution and attendants.

Methods of handling patients have been revised at the hospital, bars are slowly disappearing from the windows, the high iron fence is gone and greater freedom in all lines is being given patients. Occupational therapy is being used and patients are working as long as six hours a day and showing much skill in the performing of the tasks they undertake.

THE Committee of Arrangements for the Congress of Internal Medicine and the Session of the American College of Physicians, which will convene in St. Louis, February 18-24, are making extensive plans for the entertainment of the physicians who will be the guests of St. Louis medical profession at that time. The scientific work will consist chiefly in clinics at the hospital, including the St. Louis city hospitals. These clinics will be divided into sections and so arranged as to hours that visitors may select the courses they wish to attend. The committee is expecting an attendance of 2500 physicians and their families. Dr. Ellsworth Smith, St. Louis, is president; Dr. Wm. Engelbach, general chairman of Committee of Arrangements; Dr. John L. Tierney, chairman of the Committee on Entertainment; Dr. Edwin Schisler, chairman of Committee on Publicity and Transportation. The rate of one and one-half fares on the membership certificate plan will be allowed by the railroad.

DR. GEORGE P. ARD, State Health Supervisor, has appointed a consulting staff for the Colony for the Feeble-minded at Marshall. Those appointed are:

Dr. Emmett P. North, St. Louis, Ophthalmology.

Dr. Arthur M. Alden, St. Louis, Ear, Nose and Throat.

Dr. D. A. Robnett, Columbia, Surgery.

Dr. Frank Rose, Kansas City, Surgery.

Dr. Frank C. Neff, Kansas City, Pediatrics. City.

Dr. W. J. Ferguson, Sedalia, Internist.

Dr. W. H. Harrison, Marshall, Internist.

Dr. G. A. Aiken, Marshall, Internist.

Dr. W. W. Graves, St. Louis, Neurology.

Dr. Ard has also appointed the following on the consulting staff at the State Sanatorium for Tuberculosis:

Dr. Arthur M. Alden, St. Louis, Ear, Nose and Throat.

Dr. Robert M. Cowan, Aurora, Internist.

FINANCE AND THE PHYSICIAN

GAS BONDS AND THE MISTAKE OF TRYING TO JUDGE AN INDUSTRY AND ITS SECURITIES BY A CASUAL GLANCE AT SURFACE INDICATIONS.

SAMUEL O. RICE

Educational Director, Investment Bankers' Association of America

CHICAGO

Time was when somebody made money by making and selling bootjacks. Today there is no market for bootjacks and only a few, if any, are made. A bootjack factory would be an extremely poor basis for an investment, for bootjack making is virtually an obsolete industry.

Many persons have an erroneous notion that the industry of making manufactured gas is somewhat tending to decreased production because of electricity. They conclude that because electric lighting has caused a great decrease in the use of gas for lighting homes and streets that the market for gas has been reduced. That notion comes as near being an absolute error as any notion could be. In the past 10 years production of manufactured gas in the United States has increased 100 per cent. In the same period consumption of gas for industrial purposes increased 1,000 per cent in the United States.

The manufactured gas business was scarcely ever more prosperous than now. The reason is because of the increased use of gas in industry. Modern heating processes in manufacturing use great quantities of gas, for gas has been found to be the most economical and efficient in heat-treating processes of manufacturing.

Of course the casual observer may not be blamed for erroneously concluding that electric lighting has cut in on the gas business. It looks that way on the surface perhaps, but that simply shows how dangerous are surface indications. The fact is that electricity really did the gas industry a service when it took the little home-lighting load off the gas companies and enabled them to use their capital and energies for developing the larger and more profitable industrial field. Electricity is cheap for power, but expensive for heating purposes. Gas is cheap for heating purposes.

Gas also has the advantage of diversified use. In periods of depression people do not stop using gas stoves. Looking at it in the other light, the future development in the use of gas, men of long experience in public utilities confidently predict that gas will be increasingly used for heating in cities. Transportation of gas is much cheaper than transportation of coal. Not only are rail and water transportation of coal expensive, but local hauling of coal is becoming an expensive proposition in many cities. The indication all point to an increased use of gas for heating homes and business buildings in the large cities.

The foregoing is, of course, openly conjectural. It is, however, sound. The future of the gas business seems assured. Certainly its present situation is gratifying. I am led to write this because I have heard a number of surface-indication logicians object to gas bonds because electricity had almost usurped gas lighting in homes. One such person even advised a widow to sell certain, fine gas company bonds her husband had left her. It was pernicious advice, based on ignorance. The bonds in question were safe, high-yielding, very desirable. It would have been unwise to have sold them.

Perhaps I may be a bit tiresome in repeatedly pointing out that an investor should go to some honest, dependable authority to learn the true worth of any investment he is considering. What sort of an investigation can any man make of an enterprise in which he contemplates investing? He can, if he has time, visit the factory, the electric plant, the gas plant, the office building, oil well or other enterprise whose bonds he is considering. He can look at them carefully, go over the books, and then what does he know? How can he possibly be competent to judge whether it is a good, efficient plant, whether its different units are all right, whether as a whole it can produce and meet competition sufficiently well to pay interest or dividends? How can he know that the "corporate structure" is right? By that I mean how can he determine accurately that it has been financed most efficiently, that the right proportion of common stock, or of pre-

ferred stock, and of bonds has been judged? No man unless he is an investment banker can do that and usually investment bankers have engineers, accountants, attorneys and all sorts of specialists to help them do it.

In these articles I have determinedly endeavored not to try to persuade any one to buy any particular issue of any investment security. Instead, I have tried to show how complex a business is the making of sound investment securities and how necessary is honest, competent advice. In my own little investments I never buy anything without talking it over with one or more investment bankers. I suppose I am in as good a position as any one could be to garner "inside tips," but strange as it may seem I have found the much talked of "inside tip" virtually non-existent. But I have found a world of sound, dependable information, frankly and openly given. As a result, if I may be pardoned a further personal allusion, I have never lost a penny in investments, either of my own small funds or money of two estates I have administered. It all depends on the investment dealer you select. I know several hundred honest and competent ones—surely any physician is a good enough judge of character to select one and not put his money into schemes of crooked or incompetent promoters.

OBITUARY

H. G. SHOBE, M.D.

Dr. H. G. Shobe, of Jefferson City, a graduate of Louisville Hospital College of Medicine in 1898, committed suicide, September 30, by shooting himself with a revolver. No reason could be found for Dr. Shobe's act as he was in good health, happy in his home life, and had a large and lucrative practice. He was a member of the Missouri State Medical Association.

MISCELLANY

"FRIENDS OF MEDICAL PROGRESS"

In the face of the astonishing modern advance in medical knowledge that has come as the result of well organized scientific experimentation, a remarkable phenomenon is presented by the activities of certain organizations, which have endeavored to obstruct such advance by perverting the truth, misleading the ignorant, and endangering the public welfare. Leagues organized to assure individual freedom, however dangerous that may be to community health, cults laboring to lower the standards of medical education and practice, antivaccination societies striving to abolish a well demonstrated protection against a devastating disease, and opponents of animal experimentation, doing their utmost to check or stop an essential method of medical progress, are striking illustrations of such efforts.

The perils that lurk in such mischievous propaganda have been augmented in recent years by placing the decision on scientific matters on a popular vote. By specious arguments for personal liberty, by subtle appeals to tender emotions and kindly sentiments, many voters have been led to oppose well founded measures for the protection of the public health. Physicians have repeatedly pointed out these perils. Practically, however, our profession is not favorably placed to oppose them. Physicians who denounce the exploiting of the public by ignorant and ill-trained charlatans, or who vigorously support medical measures for the promotion of individual and community hygiene are often charged with selfish motives—they are supposed to be looking out for their own welfare and using the public welfare as a facade. Even if the unjustice of this view were recognized, physicians and health officers have neither the time nor the financial backing required to oppose effectively the fanatical campaigns constantly being waged. After all, intelligent laymen are quite as responsible for public security as are the members of the medical profession.

Under these circumstances, it is highly gratifying to note the creation of a national lay organization—the "Society of Friends of Medical Progress." The object of this society is "(1) to encourage and aid all research and humane experimentation for the advancement of medical science; (2) to inform the public of the truth concerning the value of scientific medicine to humanity and to animals; (3) to resist the efforts of the ignorant or fanatical persons or societies constantly urging legislation dangerous to the health and well-being of the American people.

The honorary president is Charles W. Eliot, ex-president of Harvard University; among the vice presidents are James R. Angell, president of Yale University; Right Rev. Alexander Mann, bishop of the Episcopal Diocese of Pittsburgh; Cardinal O'Connell of Boston; Ellen F. Pendleton, president of Wellesley College, and Hon. Charles E. Hughes of Washington, D. C. The acting president is Thomas Barbour, the naturalist. Ernest Harold Baynes, whose articles on the value of vivisection to mankind and the lower animals have done much to popularize professional information in this subject, is the field secretary.¹

This new organization appears at an opportune time, when widespread and dangerous movements are afoot to discredit scientific medicine, to procure legislation that would prevent the progress of medicine and surgery, and to destroy the bulwarks of preventive medicine and permit the incursion of diseases now held in check. The "Friends of Medical Progress" is to be a national society: if it spreads as a strong organization throughout the United States, it should perform a highly important function hitherto assumed with difficulty and with sacrifices, as a civic duty, by the medical profession.

—*Jour. A. M. A.*

INTERCHANGE OF HEALTH OFFICERS IN THE UNITED STATES

An event which may be fraught with far-reaching consequences for world health is the Third General Interchange of Health Officers arranged by the Health Section of the League of Nations, which is now taking place in the United States.

Representatives from France, England, Italy, Russia, Poland, Spain, Holland, Belgium, Greece, Yugoslavia, Germany, Switzerland, Norway, Mexico, San Salvador, Brazil, Chile and Canada, delegated by their

respective governments to participate in a course of study and observation, arrived in America the first week in September and will remain for approximately three months. Until September 22 the delegates will remain in Washington, studying national health organization as administered by the United States Public Health Service. Following the close of the course of study of the national health agency the delegation of visitors will separate into three groups, one of which will proceed to Virginia, another to North Carolina and a third to Alabama, where about three weeks will be spent in studying state and local health departments. Richmond, Virginia; Raleigh, North Carolina, and Montgomery, Alabama, are the southern cities which have been selected for study. From there the groups will proceed to Massachusetts, New York and Pennsylvania, respectively, for the purpose of studying the health administration in three northern states and small cities. Syracuse, New York; Allentown, Pennsylvania, and one of the smaller cities of Massachusetts yet to be designated, will be visited for a short period. Following this the groups will make a study of health administration in three of the large cities of the east, namely, Boston, New York and Philadelphia. Present plans call for a reassembling of the entire delegation in Washington late in November for a final conference.

The present group numbers among its members many of the most eminent sanitarians of the world. France is represented by Dr. L. Aublant, Inspecteur principal des Services d'hygiene, Dep de l'Herault, and Dr. F. Bussiere, Directeur des Services d'hygiene de Montlucon. England is represented by Dr. Thos. Carnwath, D.S.O., M.D., Ministry of Health, London S.W.1; and Dr. Chas. Porter, M.D., M.O.H., St. Marylebone, London. Italy is represented by Dr. F. Piccinini, Ufficio sanitario de Porto, Napoli. Russia is represented by Dr. S. Slonevski, San. Epid. Bureau (2 Malyj-Tcherkassky Perenlok), Narkowzdraw, Moscou; Dr. A. Marzeew, chef de San. Epid. (Technologiczka Ulica), Narkowzdraw, Kharkof, Ukraine; and M. Voejkoff, Sanitary Engineer, Narkowzdraw, Moscou. Spain is represented by Dr. R. Fernandez Cid, Inspecteur provincial de la Sante publique, San Sebastian. Holland is represented by Dr. D. J. Hulshoff Pol, Inspecteur gouvernemental de la Sante Publique, La Haye. Belgium is represented by Dr. van Boeckel, Directeur du Laboratoire de l'administration de l'hygiene, Bruxelles. Greece is represented by Dr. Prigos, Director State Bacteriological Laboratory, Athens (a. b. s. Greek Legation, Paris). Poland is represented by Dr. J. Batko, Provincial Health Office (Wojewodski Uv ead Zdrowra), Cracow. Yugoslavia is represented by Dr. Ivo Kuhn, Referent du Ministere de la Sante publique, Belgrade. Germany is represented by Dr. K. Sammemann, Port Medical officer, Hamburg. Switzerland is represented by Dr. J. Hunziker, Chef du Service d'Hygiene du Canton de bale-Ville. Norway is represented by Dr. E. Anderson, Medicin de Prefecture, Lillehammer, Norvege. Mexico is represented by Dr. Enrique Oryananos, Government Inspector of Hygiene, Mexico City. San Salvador is represented by Dr. J. Segovea, Director de Sanidad, San Salvador. Brazil is represented by Dr. Vasconcelas. Chile is represented by Dr. J. Ducci, of the Faculty of Medicine, Santiago de Chile, and Dr. C. Mayers, Director, League of Social Hygiene, Santiago. Canada is represented by Dr. M. M. Seymour, Med. Deputy Minister of Public Health, and Director of Venereal Disease Control, Saskatchewan.

The delegation is accompanied by Dr. Norman V. Lothian, of the Health Section of the League of Nation. Surgeon General Hugh S. Cumming, of the United States Public Health Service, delivered the address of welcome to the delegates.

1. The organization may be addressed as The Society of Friends of Medical Progress, 28 Newbury Street, Boston.

MISSOURI TUBERCULOSIS ASSOCIATION

To Health, School and Welfare Officers, Physicians, Dentists, Nurses, Social Workers and Teachers:

The conditions pertaining to personal and public health in Missouri have been considerably bettered within the past ten years through the operation of legislative acts providing for the reorganization of the State Board of Health and county and city public health administration, for the administration of the state and county eleemosynary institutions, and for health inspection, health supervision and physical education of school children.

Some of these favoring conditions have been established, more have been set into operation, but much still remains to be undertaken, if Missouri is to take first rank among the states in providing for the health welfare of her people. State and local volunteer health organizations have contributed mightily to bring these results about and we owe to them the obligation of our moral and financial support.

Not a little of the influence and service which has been rendered us in this development of our work through the past years is attributable to the untiring effort of the Missouri Tuberculosis Association with its annual school and popular health educational campaigns, its annual community and school health week programs, its health legislative activity and its annual state-wide sale of tuberculosis Christmas seals by which it is financed.

School and Health Week in Missouri for this year has been set for the calendar week of December 9-16; the sale of Christmas seals from Thanksgiving to Christmas. We urge that you enter earnestly into the spirit of these two movements this year and contribute materially to their success with your unstinted service in whatever way may open to you or in ways which by your own initiative you may contribute thereto.

Each teacher is especially requested to post in a conspicuous place in his school room the "IMPORTANT NOTICE" pertaining to birth and death registration in his district and to use his influence to secure the full observance of laws and regulations pertaining thereto.—Missouri State Board of Health.

By EMMETT P. NORTH, President.

CONTEST FOR SCHOLARSHIPS

Chas. A. Lee, State Superintendent of Education, has been officially notified of the opening of the prize essay contest of the American Chemical Society in which all students of high and secondary schools in the state of Missouri have been invited to compete in a national contest for \$10,000 in cash prizes and scholarships to Yale, Vassar and other universities and colleges.

The contest, which is the result of the gift of Mr. and Mrs. Francis P. Garvan, of New York, is a memorial to their daughter, Patricia, and is intended to stimulate interest among high school students in the development of chemical science in this country. All arrangements for the contest are in the hands of the committee on prize essays of the American Chemical Society, with headquarters at the Munson Building, New York City. Six prizes of \$20 in gold are to be awarded in each state in the Union and scholarships to Yale and Vassar will be given for the six best essays in the United States. These scholarships will carry with them tuition for four years in chemistry or chemical engineering and \$500 a year in cash. In addition to these awards many other scholarships will be offered through various universities and colleges. A set of five books, which includes Creative Chemistry by Slosson, The Riddle of the Rhine by Lefebure, The Life of Pasteur by

Vallery-Radot, Discovery, The Spirit and Service of Science by Gregory, and the Future Independence and Progress of American Medicine in the Age of Chemistry by a committee of the American Chemical Society, is being sent from the New York headquarters to every accredited high and secondary school in the country, and sets of these reference books are being placed in the leading libraries of the state for the use of students who enter the competition.

Contestants are advised to consult freely with science and other teachers for advice as to sources of information. It is not the intention of those in charge of the contest to induce participants to write technical essays. No knowledge of chemistry is required of entrants in the contest, the object and purpose being to instill a live interest in the subject.

RULES.

1. Contestants may submit only one essay.
2. Essays, not to exceed 2,500 words, must be confined to one of the following six topics:
 1. The Relation of Chemistry to Health and Disease.
 2. The Relation of Chemistry to the Enrichment of Life.
 3. The Relation of Chemistry to Agriculture and Forestry.
 4. The Relation of Chemistry to National Defense.
 5. The Relation of Chemistry to the Home.
 6. The Relation of Chemistry to the Development of the Industries and Resources of Your State.
3. Essay must be legibly written in ink or preferably typewritten. They should be double-spaced have wide margins and be on only one side of the paper, which should measure not less than 8½x11 inches. Each sheet should bear the name and address of the contestant. The sheets should be numbered consecutively and securely fastened together.

4. Essays must be in the hands of the designated authorities in the State before April 1, 1924. Winners will be announced not later than July 1, 1924.

Full rights to publish any essays submitted are reserved by the American Chemical Society.

THE AMAZING STATEMENT OF DR. BRIGGS

The exposure by the St. Louis *Star* of the traffic in fraudulent medical degrees with its many ramifications is a distinct service, rendered not alone to the immediate region, but to the American people. A bad doctor, a man who founds his professional career on forged lies, may settle anywhere in the country and is a menace wherever he goes. One of the important by-products of this investigation is the revelation of the fact that the County Superintendent of Schools of a Missouri County has been supplying, at a price, certificates of High School graduation to men who have never attended High School in his county, in order that by means of the forged credentials they might be enabled to enter medical colleges under the regulations prescribed by the State.

Among the students affected by these revelations were thirteen registered at the St. Louis College of Physicians and Surgeons, of which Dr. Waldo Briggs is Dean and owner. Upon the matter being brought to his attention, Dr. Briggs very properly expelled the thirteen students in question, but followed this action with the following astounding statement, which appeared in the final edition of the St. Louis *Star* of Thursday, October 25:

"My advice to other students who may have entered under similar conditions is that they remain away from this institution until they can present proper credentials."

"As to the students I am dismissing and others

whom it may become necessary to dismiss, I want to say I honestly believe these men could have made the necessary credits in proper examinations, but I feel that being wrongly influenced and improperly advised, they accepted the easiest way and purchased credentials outright.

"I am advising these men to go to the State Superintendent of Schools and submit to an examination that will meet with the requirements of the laws of Missouri concerning matriculation in the Medical School—laws which require a High School diploma or the equivalent—honestly obtained."

It would seem to a dispassionate observer that the medical profession had troubles enough in connection with this exposure without being burdened with the wholly unnecessary disgrace of such a statement as that of Dr. Briggs.

This man is an educational executive—a guide and counselor of young men. He says in effect to the thirteen students whom he has expelled: "Boys, you are expelled. You have come into this school by basing your standing on a document which you knew was false and which you bought outright from a forger and a cheat. The plan did not work; we are against such practices in this institution. But, now that you have been found out, if you can manage to pass successfully an examination by an accredited examiner, the fact that in matters vital to your professional aspirations you are liars and cheats will not be permitted to affect in the slightest degree your standing in the St. Louis College of Physicians and Surgeons."

In the doctor's relation to the patient and the patient's family, there is one thing which is more important than the degree of his technical ability; that is that he should be a good man. Dealing as he does with the forces of disease and fear, coming close to human beings in an intimacy unknown to either legal or spiritual confessors, the doctor often has to be the patient's incarnate conscience. He deals with people when they are weakened physically, when their power to think straight and to act with decision is diminished, and when, if ever, they need to feel the reality of human integrity and devotion to straight dealing and thinking.

Now the typical American boy is honest and straightforward. Not only the Church and the classroom, but the baseball diamond, the tennis court and the running track conspire to make him despise the liar and the cheat and feel an unmeasured contempt for honors seized without being earned. These thirteen boys who bought fraudulent High School certificates in order to get into Dr. Briggs' school are morally diseased—and he, as the Dean of the school, ought to have recognized the fact the instant their action as brought to his attention. They are thoroughly unfit ever to be physicians. Does Dr. Briggs not know this in his heart of hearts? If not, we are sorry for him and sorry for the student body he has at his mercy. By the way, did Dr. Briggs ever read the Hippocratic oath? If not, we advise that he hunt it up and then spend an hour in quiet thought on the ethical responsibilities of the physician.—*America at Work.*

CANCER OF THE TONGUE.—William Seaman Bainbridge, New York (*Journal A. M. A.*, October 28, 1922), emphasizes that some cancers of the tongue are not recognized as such, but are diagnosed and treated as nonmalignant neoplasms until the condition is too far advanced for hope of cure. Many errors are made in diagnosing the type, stage and extent of tongue cancer. Many lesions of the tongue are diagnosed and treated as cancer when there is no cancer present.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL, FOR 1923

(UNDER THIS HEAD WE LIST THE SOCIETIES WHICH HAVE PAID THE STATE ASSESSMENT FOR ALL THEIR MEMBERS)

Chariton County Medical Society, December 31, 1922.
Webster County Medical Society, January 6, 1923.
Madison County Medical Society, January 15, 1923.
Cape Girardeau Medical Society, January 23, 1923.
Camden County Medical Society, February 1, 1923.
Clark County Medical Society, March 5, 1923.
Perry County Medical Society, March 27, 1923.
Vernon County Medical Society, April 7, 1923.
Schuyler County Medical Society, May 3, 1923.
Howell County Medical Society, May 5, 1923.

PROCEEDINGS OF THE WASHINGTON UNIVERSITY MEDICAL SOCIETY

Ninety-Eighth Meeting, October 8, 1923

1. PRESENTATION OF CASES.

- A. INFLUENZAL MENINGITIS—Presented by DR. WATSON for DR. F. A. HARTMANN.
- B. A CASE OF EXTRA-UTERINE PREGNANCY—DR. ABEL, discussed by DR. O. H. SCHWARZ.
- C. A CASE OF CHARCOT JOINTS.—By D. M. COWGILL.

The patient is a man, 44 years of age, complaining of "swelling of knees and nervous spells." Typhoid fever at 6. In a sanitarium for tuberculosis from 1900 to 1909. Well until 1916, when he had attack of shortness of breath similar to the ones he now has. Definite history of gonorrhea and questionable history of syphilis in early life. Probably had antiluetic treatment 6 or 7 years ago.

In March, 1922, right knee began to swell but was not very painful. There were sharp pains radiating from above the knee downwardly. Knee was put in plaster cast for 3 months without improvement. For the past 3 months the left knee has been showing the same changes. There is marked hypotonia, crepitus and deformity of both knees.

The patient occasionally has respiratory crises in which he has great subjective difficulty in breathing. He believes that it is all due to his heart. Heart rate is somewhat slowed during attacks. Electrocardiogram normal. No other signs of angina pectoris.

Physical examination neurologically negative for syphilis or syringomyelia except slightly irregular pupils with sluggish reaction to light. K. J.'s and A. J.'s equal and hyperactive. Blood and spinal fluid negative. Left knee 40 cm., right 45 cm., fluctuant, with hard intracapsular masses. X-ray examination shows definite bone proliferation. Given diagnosis of Charcot joints.

This case will be reported in more detail elsewhere by DR. LEE D. CADY.

DISCUSSION.

DR. SIDNEY I. SCHWAB: This is the third or fourth case of Charcot joints that has been presented here in the neurological service. This case is of particular

interest because outside of the X-ray findings and apart from the rather acute onset there is no other evidence pointing to either syphilis of the central system or tabes dorsalis. In other words, there is here what appears to be a typical tabetic symptom without any other evidence of tabes. The question arises then whether it is justifiable to make a diagnosis of Charcot joints in an individual showing no other evidence of tabes or syphilis. It is possible that the changes found in a Charcot joint might be produced by a condition other than syphilis of the central system. Joints very similar to these shown here are found in syringomyelia, for example. The question of the origin and mechanism of these joints is of interest. It has been assumed without definite proof that the peripheral nerves and the spinal cord itself contain trophic fibres which have to do with the nutrition of the joints, and if this is so then connection between a slow degeneration of the spinal cord as seen in tabes would furnish adequate cause for the production of such a joint change. The mechanical origin of such joints as these is worth while noting. It may be unnecessary to assume that there exists any set of fibres which have to do with the nutrition of the joint. There are two things of importance. One is the hypotonia in the joints and muscles and the absence of pain. This combination favors such abnormal positions in the joints as to readily cause defects in both joint structure and the joint position. If in addition to this some slight trauma occurs then the necessary foundation for a slow inflammatory process in the joint is present. Constant hypotonia of the knee and loosening of all the joint structures would lead readily to a non-infectious arthritis, which would gradually produce the enormous joint destruction which is seen here. It should also be noted that there is a past history of tuberculosis in this case. There can be no doubt about these joints fitting into the description given by Charcot and by many others who have written on this subject. The fact that this patient shows no other indication of tabes dorsalis either in the laboratory or physical findings is the essential point of interest in this demonstration.

D. A CASE OF SUPRASELLAR CYST.—

By DR. OLCH. DISCUSSED BY DR. R. R. KINSELLA AND DR. ERNEST SACHS.

E. CASE OF GIOMA OF THE RIGHT TEMPORAL LOBE.—By DR. ERNEST SACHS.

This patient was operated on a week ago and in order to remove his tumor the greater portion of the temporal lobe had to be excised. The vessels on the temporal lobe side of the Sylvian fissure, both arteries and veins had to be ligated and then the tumor excised.

I show the case because it raises the question of diagnosis of lesions of the right temporal lobe. The only localizing signs this patient had were a partial left homonymous hemianopsia and a disturbance in sensation of the left arm. Patient was unable to discriminate as accurately between compass points as on his right side. Diagnosis lay between a tumor of the parietal lobe extending back towards the occipital, or of the temporal lobe pressing upon the post-central gyrus. I was inclined to the latter belief.

I turned down a very large flap on the right side so that the temporal lobe was well exposed, as well as the parietal lobe. The tumor involved the greater part of the temporal lobe. Had to be removed as stated above.

Following operation the patient shows no further disturbance in his eye field or in his sensation, which goes to show how extensive an excision of the temporal lobe is feasible.

DISCUSSION.

Dr. Sidney I. Schwab: The point of interest to me in this case at the present time lies in the question of localization. With the data presented before the patient was operated upon there were two important localizing factors to consider. One was the disturbance in visual field and the second the very definite sensory abnormalities. I should like to ask Dr. Sachs whether it would not be better to put emphasis upon the sensory findings which are matters of definite fact and can easily be proven rather than upon the somewhat inconclusive evidence of the slight restriction in the visual field. I myself thought that this tumor was much more likely to be found in the post-central field of the parietal lobe than the temporal lobe.

Dr. Sachs: Yes, it was in the temporal lobe. It did not extend across the Sylvian fissure. I differ with Dr. Schwab in that point; that is, regarding the field defect. I think the most valuable sign we have is a field defect, homonymous hemianopsia, which is the most valuable sign of a tumor in the temporal lobe.

Dr. Schwab: I thought it did not extend across the Sylvian fissure.

2. STUDIES IN GASTRIC ACIDITY IN INFANTS.—By DR. W. MCKIM MARRIOTT AND DR. L. T. DAVIDSON.

3. THE SUPRACONDYLOID VARIATION IN THE NEGRO.—By DR. R. J. TERRY.

Examination of 1,000 adult, living negroes, half of them men half of them women, patients in the Barnes Hospital, City Hospital and Washington University Dispensary, failed with one exception to show the supracondyloid process. This form of the supracondyloid variation was found in a comparable group of whites to the extent of 1 per cent. in a previous examination. Evidence from the prepared skeleton indicates a marked tendency for the several forms of the variation to be present in the humeri of Caucasians; only slight tendency among negroes. The plasticity of the skeleton in respect to this variation is therefore apparently considerably greater in whites than in blacks.

4. STUDIES IN RENAL TUBULE FUNCTION.—By DR. H. L. WHITE.

The "modern theory" of urine secretion as proposed by Cushny states that the glomeruli filter off a dilute "urine" which is merely deproteinized plasma and that the tubules concentrate this glomerular product by abstracting from it a fluid of constant composition. This fluid is the one optimum in composition for the organism. Certain constituents of the glomerular filtrate are reabsorbed by the tubules, in part or in whole, while other constituents are totally rejected by the tubules. The first class of substances, to which dextrose, chlorides, uric acid belong, are termed threshold bodies, the second class as sulphate, phosphate, dextrose in the phlorhizinized animal, are no-threshold bodies. The tubules act only by absorbing the threshold bodies and water from the glomerular filtrate; they do not add anything to it.

This theory stands or falls with the truth or falsity of the following propositions:

1. All no-threshold bodies should be concentrated by the kidney to the same extent during a given period, *i. e.*,

$$\frac{\text{urine concentration A}}{\text{plasma concentration A}} = \frac{\text{urine concentration B}}{\text{plasma concentration B}}$$

where A and B are no-threshold bodies.

2. All no-threshold bodies should follow parallel curves of excretion in the urine, with or without diuresis, except in so far as deviations from the parallel can be accounted for by changes in their plasma concentrations.

3. The rate of excretion of any no-threshold body should be proportional to its plasma concentration, provided the rate of glomerular filtration remains constant, or proportional to the rate of glomerular filtration, provided its plasma concentration remains constant.

The work reported is an investigation of these three propositions. It is shown that they do not hold true under varying conditions of plasma concentration and rate of urine flow. It is shown that Cushny's conception of urine and formation as a mere process of glomerular filtration and tubular reabsorption is untenable, and the necessity of invoking a tubular secretion of urea, inorganic phosphate, inorganic sulphate and of sugar in the phlorhizinized dog is pointed out. The interpretation of results obtained by Mayrs in an investigation of the first of the above propositions is criticized.

An adaptation of the benzidine method to the determination of inorganic sulphate in small amounts of plasma is described.

DISCUSSION.

Dr. Jos. Erlanger: Lateness of the hour makes discussion undesirable. I would like to call attention to just one thing which I am sure has been obvious to all; namely the clear grasp Dr. White has of the problem he set out to solve. He first carefully examined the theory and worked out its consequences. These he planned to test by means of crucial experiments. These experiments have brought him to a very definite conclusion which, in the light of present knowledge, seems unassailable.

RANDOLPH COUNTY MEDICAL SOCIETY

The regular monthly meeting of the Randolph County Medical Society was held at Huntsville on Monday night, October 8 instead of Tuesday, as is customary. Several of the members desired to attend the clinics at Kansas City and this was the cause of the change. It was the largest attended meeting we have had for some time, there being about twenty-five members present.

Dr. L. O. Nickell read a paper on "Tuberculosis of the Hip," and Dr. D. A. Barnhart presented a patient so afflicted. The two together made a splendid program.

Those present were Drs. G. O. Cuppайдж, C. B. Clapp, R. D. Streetor, M. R. Noland, Jesse Maddox, F. McCormick, L. O. Nickell, C. H. Dixon, of Moberly; C. F. Burkhalter, G. M. Nichols, of Higbee; D. A. Barnhart, G. S. Bragg, R. G. Epperly, Sr., R. G. Epperly, Jr., of Huntsville. Visitors: C. C. Smith, W. E. Johnson, of Madison; G. W. Hawkins, Dr. Fellows, of Salisbury; M. H. Rhodes, of Huntsville.

The perfect evening was finished with a splendid luncheon.

Our program for November will include a paper on the eye, by Dr. Dutton, the meeting to be held at Moberly.

C. H. DIXON, M.D., Secretary.

BOOK REVIEWS

PHYSIOTHERAPY TECHNIC. By C. M. Sampson, M.D. pp. 443, with 85 illustrations. St. Louis. C. V. Mosby Co., 1923. Price, \$7.50.

Whatever may be the reader's conclusion concerning the subject matter of this book, it is, undoubtedly,

a sincere expression of the opinions of an enthusiast based on a great mass of material. So in criticism of a work of this kind it must be borne in mind that a man devoting his entire life to the subject and with the material produced by a world war may be able to get results that a less experienced person might not obtain.

All medical advance has been a process of evolution and some of our modern therapy has developed from strange sources, though today we reject the *arcana* of Paracelsus and the fanciful theory that the remedy should be antagonistic, not to the disease itself but to its spiritual seed, still chemical medication to a great extent, including important vegetable and metallic substances is due to the therapeutic resources of this man's imagination.

So it is today, while the department store violet ray and the absurdities of an Abrams are foisted on a gullible public, we must remember that we have the wonderful proven results of radium and the deep X-ray, and that somewhere in between, in the quartz light and diathermia and high frequency, there are great possibilities for aiding the afflicted that must be worked out.

Sampson has done pioneer work in this maze and particularly in combining ultraviolet and X-ray as physiologic complements in therapeutics, and for this alone if nothing else his book should receive our careful consideration.

As to the style of the book, we can only say it will never fall into the hands of those having other than the certified requirements in English for the degree of M.D. A chiropractor whose training in this respect has been on one end of a street car would never select this as a text book. It will not fall into the hands of the quacks. In fact, it takes considerable patience for the hardened reviewer to wade through some of the personalities of the writer and get down to the facts embodied in the text.

Many of the therapeutic results claimed by the author, e. g., locomotor ataxia, pyorrhea, hay fever, etc., seem rather miraculous, but as stated in the beginning the methods by which the results are obtained are not clothed in any secrecy, but definitely stated and anyone who possesses the book is at liberty to try them.

The book is printed on good paper in clear type, and is well illustrated. It is a credit to the publisher and is probably the most comprehensive volume on the subject so far offered to the legitimate medical profession.

R. L. T.

THE NOTE BOOK OF AN ELECTRO-THERAPIST. By Mel. R. Waggoner M.D. Leather. Price, \$5.00. Pp. 173, with illustrations. Chicago. McIntosh Electrical Co., 1923.

It seems rather a shame that when there is a lot of good to be derived from properly applied physiotherapy, a manufacturer of electrical appliances should put out a book of this sort. For while extravagant claims may lead to immediate sales perhaps, in the long run there should be a legitimate demand established for proper electrical apparatus when its worth is attested by competent medical authority.

A rather extended notice of this booklet appears in the *Journal of the American Medical Association*, November 10, p. 1895, so repetition here is unnecessary. Suffice it to say that Abram's methods, absurd claims, weird pathology and lack of knowledge of fundamental principles take up too much space to make detailed comment on such a work necessary.

R. L. T.

INDEX TO VOLUME XX

A	PAGE	PAGE	
Abscess of the Brain—Nelson.....	97	Blind Pension Applicants Under 1923 Law, Examination of—Editorial.....	176
Accidental Intraspinal Injection of Nine Grains of Novocain—Williams.....	354	Blind, School for the—Editorial.....	291
Actinomycosis, Requests Reports on Human—Correspondence	34	Books for Leisure Moments	179, 238, 330, 358, 389
Acute Surgical Lesions in Children, Prevention of Deformities in—Rainey.....	271	Book Reviews—	
Adenoids, The Direct Vision Adenotomic for the Removal of—Kelley.....	411	Barker, Lewellys F.—Clinical Medicine. W. B. Saunders Co.....	260
Advertisements of Commercial Laboratories, Action of the Board of Trustees of the American Medical Association on—Miscellany.....	36	Barnes, F. M.—A Study of Mental Disease. C. V. Mosby Co.....	402
Advertising, Reforms in—Miscellany.....	398	Barnes, Harry A.—The Tonsils. C. V. Mosby Co.....	402
Alden, Arthur M.—Myringotomy from the Standpoint of the Pathology of Early Otitis Media	169	Bassler, Anthony—Diseases of the Stomach and Upper Alimentary Tract. F. A. Davis Co.	262
Allen's Goiter Treatment—Propaganda for Reform	112	Benzacon, F.—Maladies de l'Appareil Respiratoire. Masson et Cie.....	403
Allison, Dr. Nathaniel, to Harvard Medical School—Editorial	292	Brubaker, Albert P.—A Text-Book of Human Physiology. P. Blakiston's Son and Co.	149
Amebic Infection of the Liver—Larimore.....	190	Crossen, Harry Sturgeon—Diseases of Women. C. V. Mosby Co.....	261
Amendments to the Constitution and By-Laws—Editorial	330	Doble, F. Carminow—The Urethra and the Urethroscope. Oxford University Press.	401
Amidopyrine-Abbott—N. N. R.	302	Dunlap, Knight—The Elements of Scientific Psychology. C. V. Mosby Co.....	261
Anderson, A. L.—Chronic Pneumonitis Following Influenza	263	Ely, Leonard W.—Inflammation in Bones and Joints. J. B. Lippincott Co.	298
Anemia, Pernicious, The Diagnosis of—Haden.	158	Fee, E.—Textbook of Pediatrics. J. B. Lippincott Co.	298
Anemia, Transfusion in the Treatment of—Duke-Stofer	161	Fishberg, Maurice—Pulmonary Tuberculosis. Lea and Febiger.....	152
Animal Epidermal Extracts Allergens-Squibb—N. N. R.	404	Fisher, W. A.—Ophthalmoscopy. W. A. Fisher, Chicago	299
Ankylosed Joints, The Mobilization of, by Operation—Dickson	266	Goadby, Sir Kenneth—Diseases of the Gums and Oral Mucous Membrane. Oxford University Press.....	300
Annual Meeting, Members Registered at the Sixty-sixth	252	Green, Charles Lyman—Medical Diagnosis for the Student and Practitioner. P. Blakiston's Son and Co.	149
Annual Meeting, Program.....	183	Guillain Georges—Etudes Neurologiques. Masson et Cie.....	401
Annual Session, Proceedings.....	244	Guisez, Dr. Jean—Diagnostic et Traitement des Retrecissements de l'Oesophage et de la Trachee. Masson et Cie.....	366
Antiberiberi Vitamin Concentrate-Metz—N. N. R.	300	Hare, Hobart Amory—Practical Therapeutics. Lea and Febiger.....	152
Antiseptics and Germicides, The Theory and Practice of—Pitzman.....	367	Hertzler, Arthur E.—Diseases of the Thyroid Gland. C. V. Mosby Co.	152
Appendicitis with Diarrhea, The Pathology in Cases of—Sheldon-Heller.....	172	Hess, Julius H.—Principles and Practice of Infant Feeding. F. A. Davis Co.	151
Arsphenamine-Mallinckrodt—N. N. R.	302	Jansen, Dr. Murk—Feebleness of Growth and Congenital Dwarfism. Oxford University Press	110
Arterial Hypertension—Milne.....	1	Jelliffe, Smith Ely—Diseases of the Nervous System. Lea and Febiger.....	402
B		Krogh, August—The Anatomy and Physiology of Capillaries. Yale University Press....	366
Babies, Saving the—Editorial.....	329	Landram, Russell—Clinical Laboratory Methods. C. V. Mosby Co.	334
Bacillus Acidophilus and Intestinal Putrefaction—N. N. R.	301	Lyon, B. B. Vincent—Non-Surgical Drainage of the Gall Tract. Lea and Febiger.....	365
Bacillus Acidophilus Milk-Lederle—N. N. R.	111	Macarthur, John—Mental Hospital Manual. Oxford University Press.....	48
Bacillus Influenzae Allergen-Squibb—N. N. R.	262	McDonald, Archibald Leete—Essentials of Surgery. J. B. Lippincott Co.	334
Bailey, F. W.—The Recognition and Treatment of Post-Operative Complications.....	285	Mason, F. Raoul—Endocrin Glands and the Sympathetic System. J. B. Lippincott Co.	400
Bailey, F. W.—The Recognition and Treatment of Post-Operative Complications.....	319	Maxwell, Samuel Steen—Labyrinth and Equilibrium. J. B. Lippincott Co.	403
Barbital-M. C. W.—N. N. R.	302	New and Nonofficial Remedies, 1923. American Medical Association.....	298
Barnes, F. M., Jr.—Epilepsy in Ex-Service Men.	384	Ortner, Prof. Dr. Norbert—Generalized Pain. New York Medical Art Agency.....	80
Bayer 205—Propaganda for Reform.....	212		
Beaumont Program—Miscellany.....	41		
Beds Available at State Sanatorium for Tuberculosis—Editorial	237		
Berger, Harry C. and Jas. G. Montgomery—The Use of Chicken Blood in the Treatment of Pneumonias in Children.....	81		
Bills in the Legislature—Editorial.....	69		
Bills in the Legislature, Status of—Editorial.....	102		
Black, Donald R.—Iletin Treatment of Diabetes.	218		
Black, Donald R.—The Relation of Kidney Function Tests to the Prognosis and Treatment of Hypertension.....	306		
Blair, Edward G. and Kerwin Kinard—Secondary Operations for Thyrotoxicosis.....	335		
Blind Pension Act for Missouri, Changes in the—Editorial	28		

PAGE	PAGE
Book Reviews—	
Oschsner, Albert J.—(Edited by) Practical Medicine Series, Vol. II. General Surgery. The Year Book Publishers.....	152
Osterhout, W. J. V.—Injury, Recovery and Death, in Relation to Conductivity and Permeability. J. B. Lippincott Co.....	365
Overton, Grant—When Winter Comes to Main Street. Geo. H. Doran Co.....	150
Pearl, Raymond—The Biology of Death. J. B. Lippincott Co.....	299
Peters, Fredus N.—Applied Chemistry. C. V. Mosby Co.....	214
Petersen, Wm. F.—Protein Therapy and Non-specific Resistance. The Macmillan Co.....	111
Peterson, Frederick, M. D., et al, Editors—Legal Medicine and Toxicology. W. B. Saunders Company.....	366
Phillips, Wendell Christopher—Diseases of the Ear, Nose and Throat. F. A. Davis Co.....	297
Porter, Langley—Management of the Sick Infant. C. V. Mosby Co.....	297
Potter, Irving W.—Versions in Obstetrics. C. V. Mosby Co.....	299
Price, Frederick W.—A Textbook of the Practice of Medicine. Oxford University Press.....	150
Propaganda for Reform in Proprietary Medicines, Vol. 2. American Medical Association	151
Rinehart, Mary Roberts—The Breaking Point. Geo. H. Doran Co.....	150
Roger, G. H.—Nouveau Traitede Medecine. Masson et Cie.....	401
Rollier, A.—Heliotherapy. Oxford University Press	297
Sampson, C. M.—Physiotherapy Technic. Mosby Co.....	430
Sauer Louis W.—Nursing Guide for Mothers and Nurses. C. V. Mosby Co.....	309
Spriggs, Edmund I.—Duff House Papers. Oxford University Press.....	402
Stevens, A. A.—The Practice of Medicine. W. B. Saunders Co.....	299
Surgical Clinics of North America. W. B. Saunders Co.....	48
Sutton, Richard L.—Diseases of the Skin. C. V. Mosby Co.....	152
Thomas, Verlin C.—The Successful Physician. W. B. Saunders Co.....	150
Tilney, Frederick—The Form and Functions of the Central Nervous System. Paul B. Hoeber	299
Waggoner, Mel. R.—McIntosh Electrical Co.....	430
Wilson, James C.—Internal Medicine. J. B. Lippincott Co.....	403
Booth, David S.—Paralysis Agitans.....	4
Brain, Abscess of the—Nelson.....	97
Brooks, Stratton D.—New President, State University—Editorial	292
Brown's New Consumption Remedy—Propaganda for Reform.....	112
Burlingham, Louis H.—Hospital Standardization from the Standpoint of a Hospital Superintendent	64
Burns, J. Edward—Cancer of the Prostate: Diagnosis and Treatment.....	191
C	
Calcium Therapy in Tuberculosis—Propaganda for Reform.....	302
Calculi in the Upper Urinary Tract, Diagnosis and Management of—Moore.....	113
California Speaking—Editorial.....	71
Cancer, Campaign for the Control of—Editorial	422
Cancer of the Prostate: Diagnosis and Treatment—Burns	191
D	
Dann, David S.—The Value of Roentgen Ray Measurements in Cardiac Examination....	343
Deafness, Curing Prince Don Jaime's Again—Miscellany	361
Dean, New, Washington University Medical School—Editorial	356
Dennie, Charles C.—The Wassermann Reaction and the Diagnosis of Syphilis.....	372
Diabetes, Iletin Treatment of—Black.....	219
Diabetes Mellitus, Insulin in the Treatment of—Neuhoff	303
Diabetes Mellitus, Recent Advances in the Diabetic Treatment of—Neuhoff.....	57
Dickson, Frank D.—The Mobilization of Ankylosed Joints by Operation.....	266
Digitan Ampules—N. N. R.....	262
Carbohydrate Tolerance, Reduced: Its Possible Significance—Hoxie.....	316
Carbon Tetrachlorid, Toxicity of—Propaganda for Reform.....	404
Carcinoma of the Lower Lip, Surgical Treatment of—Leighton	90
Cardiac Examination, The Value of Roentgen Ray Measurements in—Dann.....	343
Cardiac Surgery, Recent Advances in—Editorial.	175
Cardio-Vascular Syphilis—Stookey.....	408
Carle, H. W.—Therapeutic Use of the Duodenal Tube	381
Castle, Otto, Memorial Prize—Miscellany	242
Cataract, Factors of Safety in the Operation for—Green	83
Certificate from the American Board of Ophthalmic Examinations—Editorial.....	136
Chandler, John F.—The Country School Teacher vs. the Country Nurse.....	379
Changes in Constitution and By-Laws, Suggestions Invited for—Correspondence.....	333
Chest, Clinical History and Serial Plate Examinations in the Differential X-Ray Diagnosis of Inflammatory Lesions of the—Sante.....	194
Chicken Blood in the Treatment of Pneumonias in Children, The Use of—Berger-Montgomery	81
Child Health Association, The American—Editorial	137
Chiropractor Liable for Care, Skill and Knowledge in Diagnosis—Miscellany.....	294
Chiropractors, Training Veterans to Be—Editorial	29
Cinchophen-M. C. W.—N. N. R.....	302
Clinical Society, New (Kansas City)—Editorial.	105
Consumption Cure, A Patented—Propaganda for Reform	112
Correspondence:	
Actinomycosis, Requests Reports on Human..	34
Appeal for Medical Supplies.....	76
Fund for Professor E. Friedberger.....	241
Goitre, Reprints on, Wanted.....	34
Hydatidiform Mole	181
Infectious Jaundice	34
Pasteur, Centenary of.....	241
Suggestions Invited for Changes in the Constitution and By-Laws.....	333
Wanted: Retired Medical Officer.....	141
Cute Suggestion, How the Works—Miscellany..	42
Country School Teacher, The, vs. the Country Nurse—Chandler	379
Crippled Child, Educate and Habilitate the—Editorial	237
Crippled Children, St. Louis Medical Society Opens Second Campaign in Aid of—Editorial	178
Culture-Jac Omitted from N. N. R. and Optolactin Not Accepted.....	301
D	
Dann, David S.—The Value of Roentgen Ray Measurements in Cardiac Examination....	343
Deafness, Curing Prince Don Jaime's Again—Miscellany	361
Dean, New, Washington University Medical School—Editorial	356
Dennie, Charles C.—The Wassermann Reaction and the Diagnosis of Syphilis.....	372
Diabetes, Iletin Treatment of—Black.....	219
Diabetes Mellitus, Insulin in the Treatment of—Neuhoff	303
Diabetes Mellitus, Recent Advances in the Diabetic Treatment of—Neuhoff.....	57
Dickson, Frank D.—The Mobilization of Ankylosed Joints by Operation.....	266
Digitan Ampules—N. N. R.....	262

PAGE	PAGE		
Digitan Solution—N. N. R.....	262	Editorials—	PAGE
Diphtheria in Missouri, Control of—Hurford....	95	Prize for the Best Paper Read Before the	
Diphtheria Toxin-Antitoxin Mixture-Lilly—N. N.		Kansas City Academy of Medicine.....	356
R.....	111	Psychiatric Clinic, The.....	135
Diphtheria Toxin and Control for Schick Tests—		Reclaiming First Offenders.....	421
N. N. R.....	111	Reduced Rates to Joplin Session.....	136
Diphtheroid, Bacillus, Allergen-Squibb—N. N. R.	262	Reputable Again	135
Duke, W. W. and D. D. Stofer—Transfusion in		Research Work and Mental Disease.....	69
the Treatment of Anemia.....	161	Retaining the Physician.....	356
Duodenal Tube, Therapeutic Use of the—Carle..	381	Robinson, G. Wilse, M. D., Our New President	236
Dreyer Tuberculosis Vaccine, The—Propaganda		St. Louis Expands Public Hospital Work....	236
for Reform.....	404	St. Louis Medical Society Opens Second Cam-	
Editorials—	E	paign in Aid of Crippled Children.....	178
Allison, Dr. Nathaniel to Harvard Medical		Scholarships in Child Health Work.....	330
School	292	School for the Blind.....	291
Amendments to the Constitution and By-Laws	330	School for Crippled Children at St. Louis—	
American Child Health Association, The.....	137	Editorial	422
Babies, Saving the.....	329	Smith's, Dr., Name Omitted.....	206
Beds Available at State Sanatorium for Tu-		State Convention at Joplin, The.....	70
berculosis	237	Egg Yolk Globulin Allergen-Squibb—N. N. R.	262
Bills in the Legislature.....	69	Electronic Diagnosis and Treatment, Another—	
Bills in the Legislature Status of.....	102	Propaganda for Reform.....	404
Blind Pension Act for Missouri, Changes in		Empyema, Experience with the Mozingo Method	
the	28	of Treatment of—Fuerth.....	122
Blind Pension Applicants Under 1923 Law,		Endocrin Disturbances, A Resume of Symptoms	
Examination of.....	176	and Signs in Some of the Principal—Falk..	201
Brooks, Stratton D.—New President State Uni-		Endocrine Balance—Sands.....	24
versity	292	Enucleation of the Eye-Ball—Jennings.....	375
California Speaking.....	71	Epidermomycosis—Frick	55
Cancer, Campaign for the Control of.....	422	Epilepsy in Ex-Service Men—Barnes.....	384
Cardiac Surgery, Recent Advances in.....	175	Epinephrin Chloride Solution-Abbott—N. N. R.	302
Certificate from the American Board of Oph-		Ethyl Chlorid as a General Anesthetic—Propa-	
thalmic Examinations.....	136	ganda for Reform.....	404
Chiropractors, Training Veterans to Be.....	29	Exophthalmic Goiter, The Diagnosis and Treat-	
Clinical Society, New.....	105	ment of—Mastin.....	311
Crippled Child, Educate and Habilitate.....	237	Eyes to the Government, Giving—Miscellany..	37
Dean Washington University Medical School,		F	
New	356	Falk, O. P. J.—A Resume of Symptoms and	
Finance and the Physician.....	356	Signs in Some of the Principal Endocrin	
Golf Clubs to Joplin, Bring Your.....	177	Disturbances	201
Golf Tournament, The.....	205	Finance and the Physician.....	360, 396, 424
Hadley, Herbert Spencer, New Chancellor		Finance and the Physician—Editorial.....	356
Washington University.....	292	Food Allergens-Squibb—N. N. R.	404
Harding, Warren Gamaliel.....	329	Friends of Medical Progress—Miscellany.....	425
"Human Wreckage" and the Drug Traffic.....	292	Frick, William—Epidermomycosis.....	55
Hygeia	206	Fuerth, A. L.—Experience with the Mozingo	
Hygeia : A Journal of Individual and Commu-		Method of Treatment for Empyema.....	122
nity Health	30	Fund for Professor E. Friedberger—Correspon-	
Ignorant Men Shall Not Treat the Sick, So.	71	dence	241
Insulin	337	G	
Insulin, Use of, to Be Taught.....	236	Gas Bonds and the Mistake of Trying to Judge	
Investigating Medical Schools and Medical		an Industry and Its Securities by a Casual	
Practice	389	Glance at Surface Indications.....	424
Joplin Is Expecting You.....	176	Gastric Hyperacidity as an Etiological Factor in	
Joplin Meeting, The—May 8, 9, 10, 1923....	102	Ptyorrhea Alveolaris—Tyree.....	281
Joplin Session, The.....	204	Gayler, Wenzel C.—New Methods of Diagnos-	
Maternal Welfare—An Appeal for Information		ing Early Pregnancy.....	223
on	291	Ginseng—Propaganda for Reform.....	111
McAlester, Dr. A. W.....	79	Goiter, Exophthalmic, The Diagnosis and Treat-	
Medical Diploma Mill Exposed.....	387	ment of—Mastin.....	311
Medical Schools Inspected.....	421	Goitre, Reprints Wanted on—Correspondence..	34
Medical Society, The, and the Rights of the		Golf Clubs to Joplin, Bring Your—Editorial....	177
Community	328	Golf Tournament The—Editorial.....	205
Missouri Hospital Association.....	238	Green, John, Jr.—Factors of Safety in the Oper-	
Missouri Pacific Hospital, Opening of New...	329	ation for Cataract.....	83
Missouri State Sanatorium for Treatment of		Grinstead, W. F.—Some Lessons From Seven	
Incipient Pulmonary Tuberculosis, How to		Prostatectomies in My Own Clinic.....	63
Enter the.....	327	H	
National Hospital Day at Missouri State Sana-		Haden, Russell L. and Thomas G. Orr—Essential	
torium	205	Factors in the Treatment of Intestinal Ob-	
Oculists, Optometrists and Optical Firms.....	357	struction	340
Oculist, The.....	356		
Pension for the Blind, The Examination of Ap-			
plicants for	204		

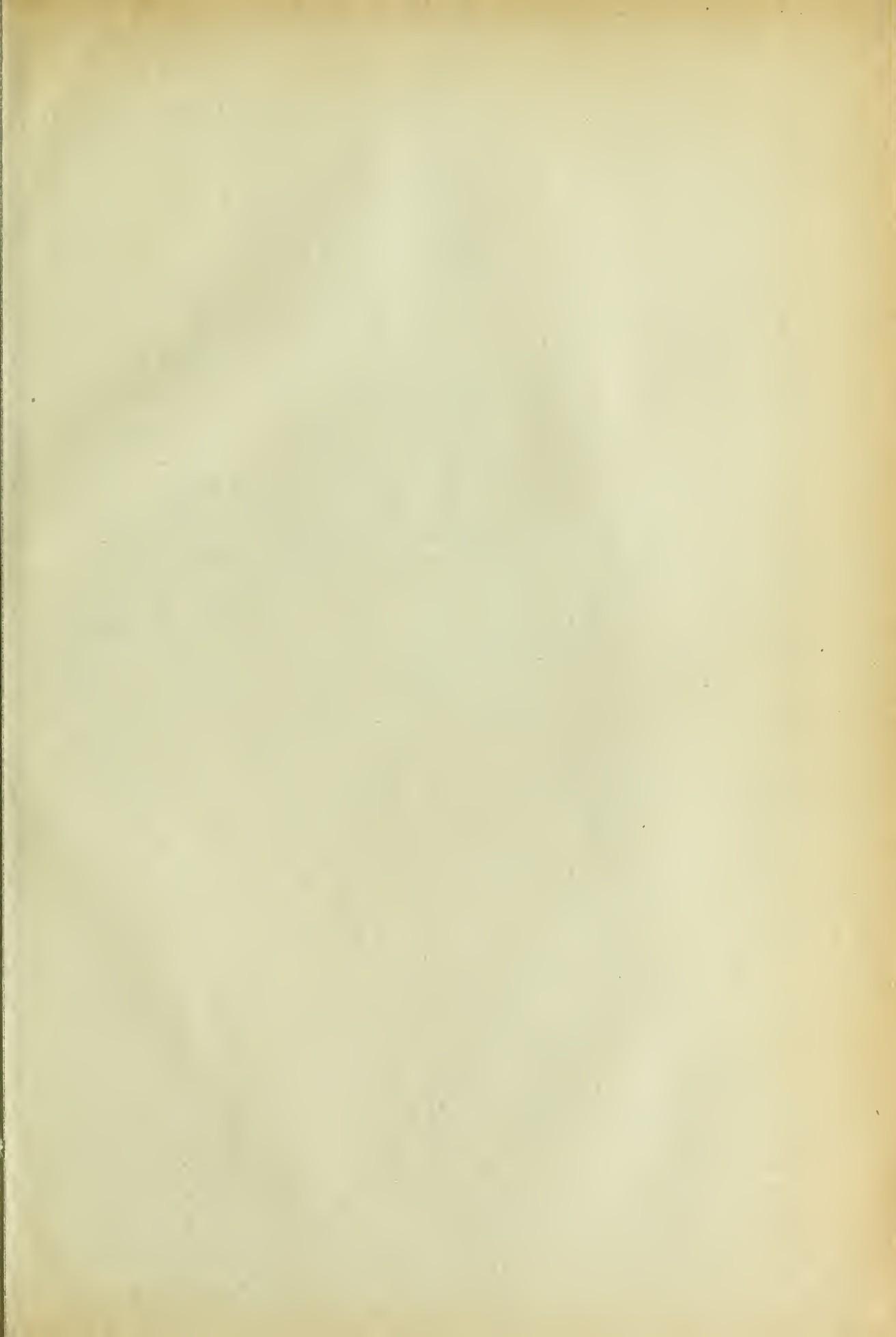
	PAGE		PAGE
Haden, Russell L. and Thomas G. Orr—Upper Intestinal Tract Obstruction.....	185	K	
Haden, Russell L.—The Diagnosis of Pernicious Anemia	158	Kelley, I. D., Jr.—The Direct Vision Adenotome for the Removal of Adenoids.....	411
Hadley, Herbert Spencer, New Chancellor Washington University—Editorial.....	292	Kidney Function Tests, The Relation of, to the Prognosis and Treatment of Hypertension—Black	306
Harding, Warren Gamaliel—Editorial.....	329	Kidneys, The Phenosulphonephthalein Test in the Determination of the Relative Functional Capacity of the Two—Young.....	117
Healing Springs Water—Propaganda for Reform	112	Kinard, Kerwin and Edward G. Blair—Secondary Operations for Thyrotoxicosis.....	335
Health Clause in the New Constitution, Vote for the—Editorial	421	Kirchner, Walter C. G.—The Factor of Obesity in Surgical Operations.....	49
Health Laws, Good, Demand Co-operation of Public with the Medical Profession—McComas	215	Krebs, O. S. and L. A. Wilson—Scopolamin-Morphin Semimarcosis in the Second Thousand Deliveries in Barnes Hospital.....	12
Health Service, Rural, and State Medicine, Some Problems in—Nifong.....	66	L	
Heller, Edward P. and John G. Sheldon—The Pathology in Cases of Appendicitis with Diarrhea	172	Larimore, J. W.—Amebic Infection of the Liver.	190
Hemangioma, with Calcification, Pre-operative and Post-operative X-Ray Findings—Ravold	318	Leighton, W. E.—Surgical Treatment of Carcinoma of the Lower Lip.....	90
Hexamethylenamin, The Disappointment of—Propaganda for Reform.....	262	Lemon, G. B.—Possible Risk in Manipulation of Diseased Stomach.....	100
Horovitz Protein Substance No. 10—N. N. R.	300	Limited Practice and Its Control: What of the Future—Pearse	348
Horse Serum Allergen-Squibb—N. N. R.	262	Liver, Amebic Infection of the—Larimore.....	190
Hospital Association, Missouri—Editorial.....	238	Liver, Metastatic Infarcts of the, With Very Unusual Symptomatology—Robichaux.....	88
Hospital Day, National at Missouri State Sanatorium—Editorial	205	Lounsberry, Ray C.—Skin Diseases and Their Importance to the General Practitioner....	233
Hospital, New St. Luke's, Kansas City, Mo.—Miscellany	181	Lyman, Harry W.—Relation of Nose and Throat Operations to Lung Abscess.....	418
Hospital Standardization from the Standpoint of a Hospital Superintendent—Burlingham.....	64	Lymphosarcomata and Other Glandular Enlargements of the Neck; Their Radiation Treatment—Skinner	377
Hoxie, George Howard—Reduced Carbohydrate Tolerance: Its Possible Significance.....	316	M	
"Human Wreckage" and the Drug Traffic—Editorial	292	Malnutrition in Older Children, Some Practical Points in the Handling of—Veeder.....	276
Hurford, P. G.—Control of Diphtheria in Missouri	95	Mastin, Edward Vernon—The Diagnosis and Treatment of Exophthalmic Goiter.....	311
Hydatidiform Mole—Correspondence.....	181	Maternal Welfare, An Appeal for Information on—Editorial	291
Hygeia: A Journal of Individual and Community Health	30	McAlester, Dr. A. W.—Editorial.....	70
Hygeia—Editorial	206	McComas, A. R.—Good Health Laws Demand Co-operation of Public with the Medical Profession	215
Hypertension, Arterial—Milne	1	McMurtry, Lewis S.—The Birth of Scientific Surgery	153
Hypertension, The Relation of Kidney Function Tests to the Prognosis and Treatment of—Black	306	Medical Diploma Mill Exposed—Editorial.....	387
I		Medical Law, To Restore a Good—Miscellany.	294
Ignorant Men Shall Not Treat the Sick, So—Editorial	71	Medical Organization Ideals and Accomplishments of—Witherspoon—Miscellany.....	143
Infection and Resistance in Tuberculosis—Simon	198	Medical Practice, Regulating—Miscellany.....	394
Influenza, Chronic Pneumonitis Following—Anderson	263	Medical Schools and Medical Practice, Investigating—Editorial	389
Iletin (Insulin-Lilly)—N. N. R.	302	Medical Society, The and the Rights of the Community—Editorial	328
Iletin Treatment of Diabetes—Black.....	218	Medical Supplies, Appeal for—Correspondence..	76
Insulin—Editorial	327	Medicine, The Spirit of St. Louis—Schlueter—Miscellany	40
Insulin—N. N. R.	302	Meetings, Large Society—Miscellany.....	41
Insulin in the Treatment of Diabetes Mellitus—Neuhoff	303	Mendel-Pasteur Centenary at St. Louis University, The—Miscellany.....	34
Insulin, Present Status of—N. N. R.	300	Mercupressin—Propaganda for Reform.....	111
Insulin-Toronto—N. N. R.	302	Mercuric Cyanide—M. C. W.—N. N. R.	302
Insulin, Use of, to be Taught—Editorial.....	236	Metastatic Infarcts of the Liver, with Very Unusual Symptomatology—Robichaux.....	88
Intestinal Obstruction, Essential Factors in the Treatment of—Orr-Haden.....	340	Milne, Lindsay S.—Arterial Hypertension.....	1
Intestinal Tract Obstruction, Upper—Haden-Orr	185	Misbranded nostrums, More—Propaganda for Reform	112
Intussusception with Left-Sided Mass. Report of a Case—Twyman.....	100	Miscellany—	
Investing and Speculating, An Inside View of the Difference Between—Finance and the Physician—Rice	396	Advertisements of Commercial Laboratories, Action of the Board of Trustees of the American Medical Association on.....	36
J			
Jaundice, Infectious—Correspondence.....	34		
Jennings, J. Ellis—Enucleation of the Eye-Ball..	375		
Joplin Is Expecting You—Editorial.....	176		
Joplin Meeting, The, May 8, 9, 10—Editorial.....	102		

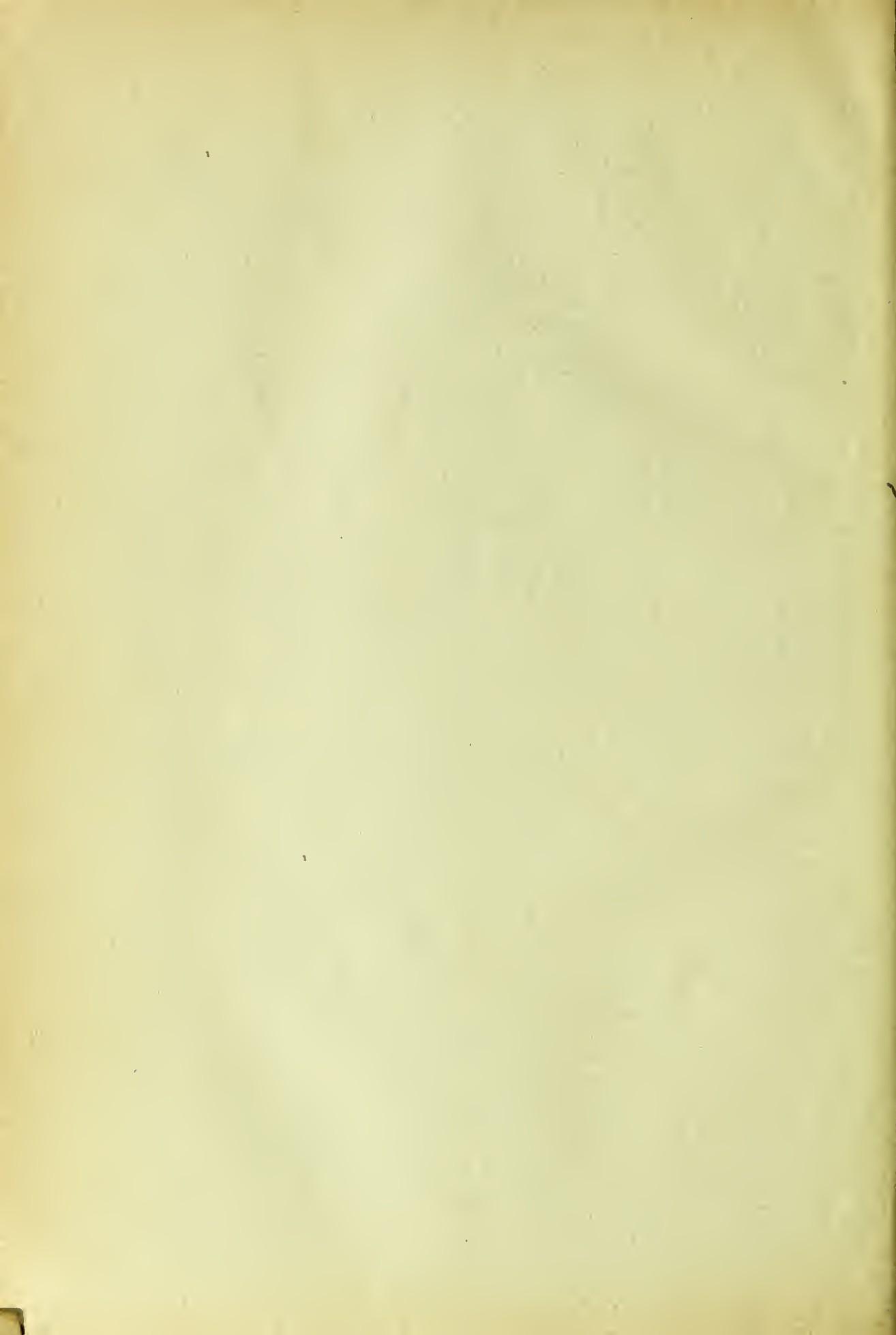
	PAGE
Miscellany—	
Beaumont Program	41
Briggs, Dr., The Amazing Statement of.....	427
Castle, Otto, Memorial Prize (Jackson County Medical Society)	242
Chiropractor Liable for Care, Skill and Knowledge in Diagnosis.....	294
Contest for Scholarships.....	427
Cote Suggestion Works, How the.....	42
Curing Prince Don Jaime's Deafness Again..	361
Eyes to the Government, Giving.....	37
Friends of Medical Progress.....	425
Health Officers in the United States, Exchange of	426
Hospital, The New St. Luke's, Kansas City, Mo.	181
Idaho Osteopaths May Not Practice Surgery	243
Ideals and Accomplishments of Medical Organization—Witherspoon	143
Indispensable Profession, An.....	142
Large Society Meetings.....	41
Medical Law, To Restore a Good.....	294
Medical Schools Inspected—Editorial.....	421
Mendel-Pasteur Centenary at St. Louis University	34
"President's Night" First Annual.....	243
Reforms in Advertising.....	398
Regulating Medical Practice.....	294
Report of the Medical Progress Committee of the St. Louis Medical Society.....	38
San Francisco Convention Session of the American Medical Association as a Starting Point for Various Touts, The.....	142
St. Louis Medical Society—Special to San Francisco	182
St. Louis Medicine, The Spirit of—Schlueter..	40
Vote of Senators and Representatives on Senate Bill No. 131 (Reputable Medical College)	141
Missouri Pacific Hospital, Opening of New— Editorial	329
Missouri State Sanatorium for Treatment of Incipient Pulmonary Tuberculosis, How to Enter the—Editorial.....	327
Missouri Tuberculosis Association—Miscellany..	427
Mobilization of Ankylosed Joints by Operation, The—Dickson	266
Montgomery, Jas. G. and Harry C. Berger—The Use of Chicken Blood in the Treatment of Pneumonias in Children.....	81
Moody, Ellsworth—Scarlatinatina-Like Rash Following Tonsillitis	386
Moore, Neil S.—Diagnosis and Management of Calculi in the Upper Urinary Tract.....	113
Morphia-Hyoscine, Tydrobromide Seminarscrosis Preceding Operation—O'Keefe.....	126
Mozingo Method of Treatment for Empyema, Experience with the—Fuerth.....	122
Myringotomy From the Standpoint of the Pathology of Early Otitis Media—Alden.....	169
 N	
Neck, Lymphosarcomata and Other Glandular Enlargements of the: Their Radiation Treatment—Skinner	377
Neisser-San-Kahn—N. N. R.....	301
Neisser-San-Kahn Not Accepted for N. N. R. Propaganda for Reform.....	262
Nelson, Wm.—Abscess of the Brain.....	97
Neuhoff, F.—Insulin in the Treatment of Diabetes Mellitus.....	303
Neuhoff, F.—Recent Advances in the Dietetic Treatment of Diabetes Mellitus.....	57
New and Nonofficial Remedies....111, 262, 300, 403	
 P	
Paralysis Agitans—Booth.....	4
Pasteur, Louis, Centenary of—Correspondence..	241
Patent Office a Federal Rip Van Winkle, The— Propaganda for Reform.....	112
	PAGE
News Notes.....30, 72, 105, 137, 178, 207, 239, .....292, 331, 358, 391, 423	
Nifong, Frank G.—Some Problems in Rural Health Service and State Medicine.....	66
Norton, H. B.—Some Observations on Scarlet Fever	22
Nose and Throat Operations, Relation of, to Lung Abscess—Lyman.....	418
Nostrums, More Misbranded—N. N. R.....	300
Novocain, Accidental Intraspinal Injection of Nine Grains of—Williams.....	354
 O	
Obesity in Surgical Operations, The Factor of —Kirchner.....	49
 Obituary—	
Amos, Dr. Omar E.....	140
Amyx, Dr. Robert F.....	333
Anderson Dr. T. Mitch.....	76
Brown, Dr. John A.....	107
Butler, Dr. Louis Picot.....	398
Campbell, Dr. William R.....	209
Caplan, Dr. Leo.....	33
Derfler, Dr. Morris E.....	75
Eskew, Dr. DeWitt F.....	107
Etherton, Dr. William C.....	241
Funkhouser, Dr. Robert M.....	180
Hardaway, Dr. William Augustus.....	139
Klie, Dr. Constantine M. T.....	398
Knabb, Dr. Enoch.....	140
Le Saulnier, Dr. Edward Baumhoff.....	140
Luscher, Dr. Lewis W.....	75
Lyons, Dr. Richard Charles.....	398
McAlester, Dr. A. W.....	74
Meng, Dr. Edwin R.....	210
Milem, Dr. Jacob M.....	333
Nixon, Dr. John Howard.....	107
Ross, Dr. Herman C.....	33
Shobe, Dr. H. G.....	425
Simmons, Dr. Charles Columbus.....	140
Spinzig, Dr. Felix.....	181
Titterington, Dr. Miles B.....	210
Todd, Dr. George O.....	107
Tonge, Dr. James A. G.....	241
Obstetric Problems, Some—Van Eman.....	278
Ocular Manifestations of the Rat Which Result From Deficiency of Vitamin A in the Diet..	80
Oculist, The—Editorial.....	356
Oculists, Optometrists and Optical Firms—Editorial	357
O'Keefe, Charles D.—Morphia-Hyoscine Hydrobromide Seminarscrosis Preceding Operation.	126
Okerblad, Nelse F.—A New Urethral Syringe ..	420
Optic Neuritis and Retino-Choroiditis Secondary to Accessory Nasal Sinus Disease, Two Striking Cases of—Post.....	404
O'Reilly, Archer—Syphilis in Orthopedic Surgery	166
Orr, Thomas G. and Russell L. Haden—Intestinal Tract Obstruction, Upper.....	185
Orr, Thomas G. and Russell L. Haden—Essential Factors in the Treatment of Intestinal Obstruction	340
Orthopedic Surgery, Syphilis in—O'Reilly.....	166
Osteopaths May Not Practice Surgery, Idaho —Miscellany	243
Overholser, M. P.—Toxic Thyroid.....	59

PAGE	PAGE
Pearce, Herman E.—Limited Practice and Its Control: What of the Future?.....	348
Pension for the Blind, The Examination of Applicants for—Editorial.....	204
Pernicious Anemia, The Diagnosis of—Haden..	158
Phenolsulphonephthalein Test in the Determination of the Functional Capacity of the Two Kidneys—Young	117
Pitzman, Marsh—The Theory and Practice of Antiseptics and Germicides.....	367
Pneumonias in Children, The Use of Chicken Blood in the Treatment of—Berger-Montgomery	81
Pneumonitis, Chronic, Following Influenza—Anderson	263
Pollen Extracts-Arlco—N. N. R.....	404
Pollen Extracts—N. N. R.....	403
Pollen Protein Allergens-Squibb—N. N. R.....	404
Poliomyelitis, Common Mistakes in the Treatment of—Stewart.....	415
Post, M. Hayward—Two Striking Cases of Optic Neuritis and Retino-Choroiditis Secondary to Accessory Nasal Sinus Disease.....	404
Post-Operative Complications, The Recognition and Treatment of—Bailey.....	285
Post-Operative Complications, The Recognition and Treatment of—Bailey.....	319
Pregnancy, New Methods of Diagnosing Early —Gayler	223
Pregnancy and Tuberculosis—Schwarz.....	227
President's Night, First Annual—Miscellany.....	243
Prevention of Deformities in Acute Surgical Lesions in Children—Rainey.....	271
Prize for the Best Paper Read Before the Kansas City Academy of Medicine—Editorial.....	356
Profession, An Indispensable—Miscellany.....	142
Propaganda for Reform.....	111, 262, 302, 404
Propaganda for Reform in Germany, The—N. N. R.....	301
Prostate, Cancer of the—Burns.....	191
Prostatectomies in My Own Clinic, Some Lessons From Seven—Grinstead.....	63
Psychiatric Clinic, The—Editorial.....	135
Public Hospital Work, St. Louis Expands—Editorial	236
Pyorrhea Alveolaris, Gastric Hyperacidity as an Etiological Factor in—Tyree.....	281
Q	
Quayle's "Bob-White Habit Sinkers"—N. N. R..	301
Quinine Ethyl Carbonate—N. N. R.....	302
R	
Radium Emanation (Radium Emanation Corporation)—N. N. R.....	403
Rainey, Warren R.—Prevention of Deformities in Acute Surgical Lesions in Children.....	271
Rates to Joplin Session, Reduced—Editorial.....	136
Ravold, H. J.—Hemangioma, with Calcification, Pre-Operative and Post-Operative X-Ray Findings	318
Reclaiming First Offenders—Editorial.....	421
Reduced Carbohydrate Tolerance: Its Possible Significance—Hoxie	316
Report of the Medical Progress Committee of the St. Louis Medical Society—Miscellany..	38
Reputable Again—Editorial.....	135
Research Work and Mental Disease—Editorial..	69
Retaining the Physician—Editorial.....	356
Rice, Samuel O.—An Inside View of the Difference Between Investing and Speculating..	396
Robichaux, E. C.—Metastatic Infarcts of the Liver, with Very Unusual Symptomatology.	88
Robinson, F. Wilse—Our New President—Editorial	236
S	
Roentgen Ray Measurements in Cardiac Examinations, The Value of—Dann.....	343
S	
St. Louis Medical Society, Special to San Francisco—Miscellany	182
Sands, M. L.—Endocrine Balance.....	24
San Francisco Convention Session of the American Medical Association as a Starting Point for Various Tours, The—Miscellany.....	142
Sante, L. R.—Clinical History and Serial Plate Examinations in the Differential X-Ray Diagnosis of Inflammatory Lesions of the Chest	194
Scarlatina-Like Rash Following Tonsilitis—Moody	386
Scarlet Fever, Some Observations on—Norton..	22
Schick-Test-Lilly—N. N. R.....	111
Schlüter, Robert E.—The Spirit of St. Louis Medicine—Miscellany	40
Scholarships in Child Health Work—Editorial..	330
School for Crippled Children at St. Louis—Editorial	422
Schwarz, Otto H.—Pregnancy and Tuberculosis	227
Scopolamin-Morphin Seminars in the Second Thousand Deliveries in Barnes Hospital—Krebs-Wilson	12
Senate Bill No. 131 (Reputable Medical College), Vote of Senators and Representatives on—Miscellany	141
Session, The Joplin—Editorial.....	204
Sheldon, John G. and Edward P. Heller—The Pathology in Cases of Appendicitis with Diarrhea	172
Simon, Selig—Infection and Resistance in Tuberculosis	198
Skin Diseases and Their Importance to the General Practitioner—Lounsberry.....	233
Skinner, E. H.—Lymphosarcomata and Other Glandular Enlargements of the Neck: Their Radiation Treatment.....	377
Smith's Dr. Name Omitted—Editorial.....	206
Society Proceedings—	
Boone County Medical Society.....	296, 334, 400
Caldwell County Medical Society.....	259, 400
Carter-Shannon County Medical Society.....	361
Cass County Medical Society.....	363
Clay County Medical Society.....	47, 110, 259, 295
Clinton County Medical Society.....	259, 296
County Society Honor Roll.....	76, 108, 145, 183, 210, 244, 295, 334, 361, 399
Jackson County Medical Society.....	363
Jasper County Medical Society.....	48, 259
Joint Meetings of County Societies.....	334
Lafayette County Medical Society.....	363
Livingston County Medical Society.....	110
Missouri State Medical Association, 66th Annual Meeting.....	183, 244
Montgomery County Medical Society.....	48, 296
Moniteau County Society Proceedings.....	79
Proceedings of the St. Louis Neurological Society	44, 108
Proceedings of the Washington University Medical Society.....	42, 76, 145, 210, 399, 428
Randolph County Medical Society	48, 79, 296, 364, 430
St. Louis County Medical Society.....	80, 400
Saline County Medical Society.....	296, 364
Schuylerville County Medical Society.....	80
Society of Neurological Surgeons.....	47
Vernon County Medical Society.....	260, 400
Webster County Medical Society.....	260, 296
Wright-Douglas County Medical Society.....	110, 260, 364
Sofos—N. N. R.....	403

PAGE		PAGE		
Staphylococcus Citreus Allergen-Squibb—N. N. R.	262	U	Urethral Syringe, A New—Ockerblad.....	420
State Convention at Joplin, The—Editorial.....	70	V		
Stewart, J. Edgar—Common Mistakes in the Treatment of Poliomyelitis.....	415		Van Eman, F. T.—Some Obstetric Problems..	278
Stofer, D. D. and W. W. Duke—Transfusion in the Treatment of Anemia.....	161		Veeder, Borden S.—Malnutrition in Older Children, Some Practical Points in the Handling of	376
Stomach, Diseased, Possible Risk in Manipulation of—Lemmon.....	100			
Stookey, Paul F.—Cardio-Vascular Syphilis....	408			
Strychnin and Disturbances of the Vision—Propaganda for Reform.....	112			
Sulpharsphenamine-Billon—N. N. R.	403			
Surgery, The Birth of Scientific—McMurtry....	153			
Syphilis, Cardo-Vascular—Stookey.....	408			
Syphilis in Orthopedic Surgery—O'Reilly.....	166			
Syphilis, The Wassermann Reaction and the Diagnosis of—Dennie.....	372			
T				
Theocin Sodium Acetate—N. N. R.	111			
Therapeutics, Progress and Conservatism in— Propaganda for Reform.....	302			
Thyroid, Toxic—Overholser.....	59			
Thyrotoxicosis, Secondary Operations for—Blair-Kinard	335			
Tonsillitis, Scarlatina-Like Rash Following— Moody	386			
Toxic Thyroid—Overholser.....	59			
Truth About Medicines, The.....	111, 262, 300, 403			
Tuberculosis, Infection and Resistance in—Simon	198			
Tuberculosis, Pregnancy and—Schwarz.....	227			
Twyman, E. D.—Intussusception with Left-Sided Mass	100			
Tyree, James I.—Gastric Hyperacidity as an Etiological Factor in Pyorrhea Alveolaris.....	281			
X				
X-Ray Diagnosis of Inflammatory Lesions of the Chest, Differential—Sante.....	194			
Y				
Young, H. McClure—Suggestion for a Standard Technique in the Application of the Phenol-sulphonephthalein Test in the Determination of the Relative Functional Capacity of the Two Kidneys	117			







169

